

REPLACEMENT SHEET

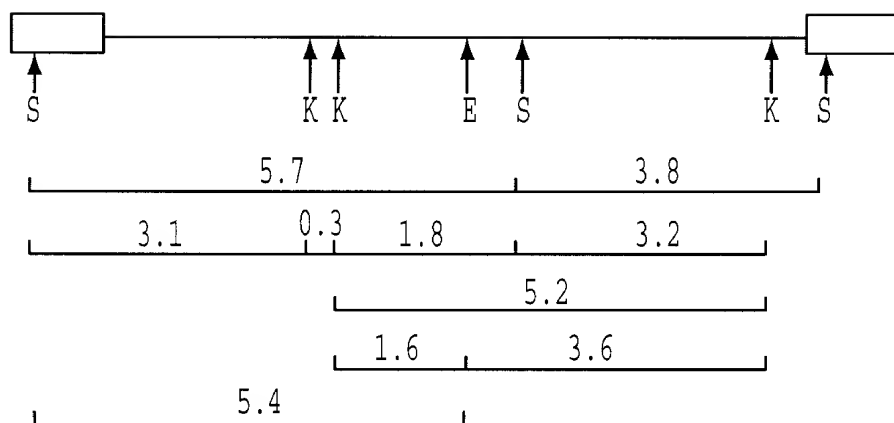


FIG. 1

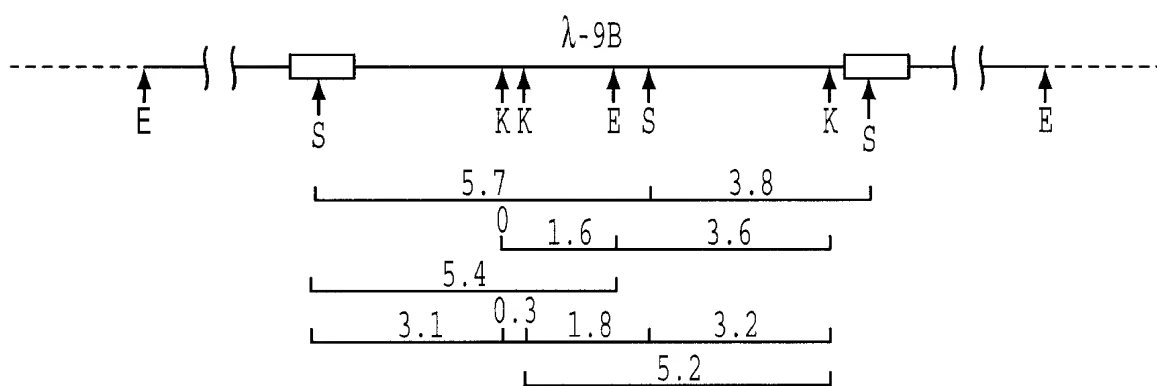


FIG. 2

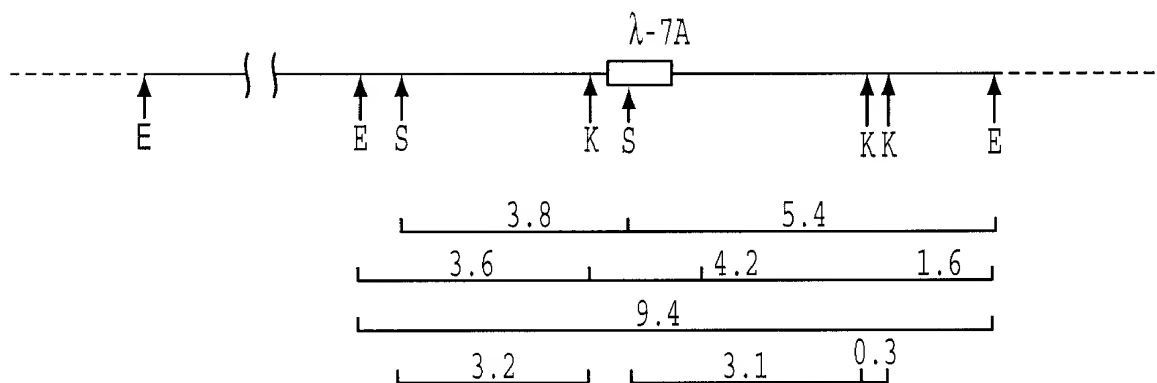


FIG. 3

REPLACEMENT SHEET

Argument Map in DNA Strand ssarv2
from the '/v/lib/6mers' file.
Translation shown at open reading frames.

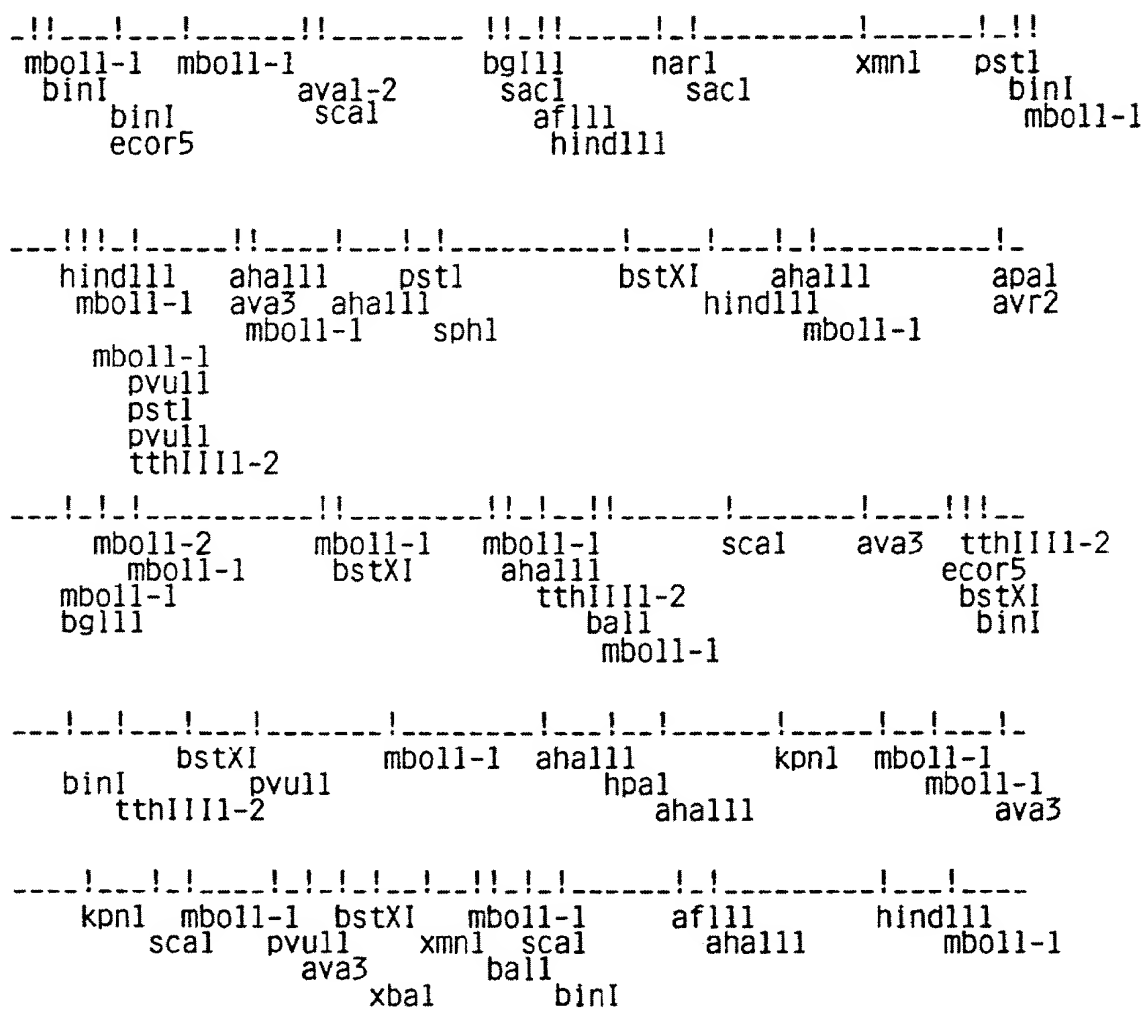


FIG. 4A

REPLACEMENT SHEET

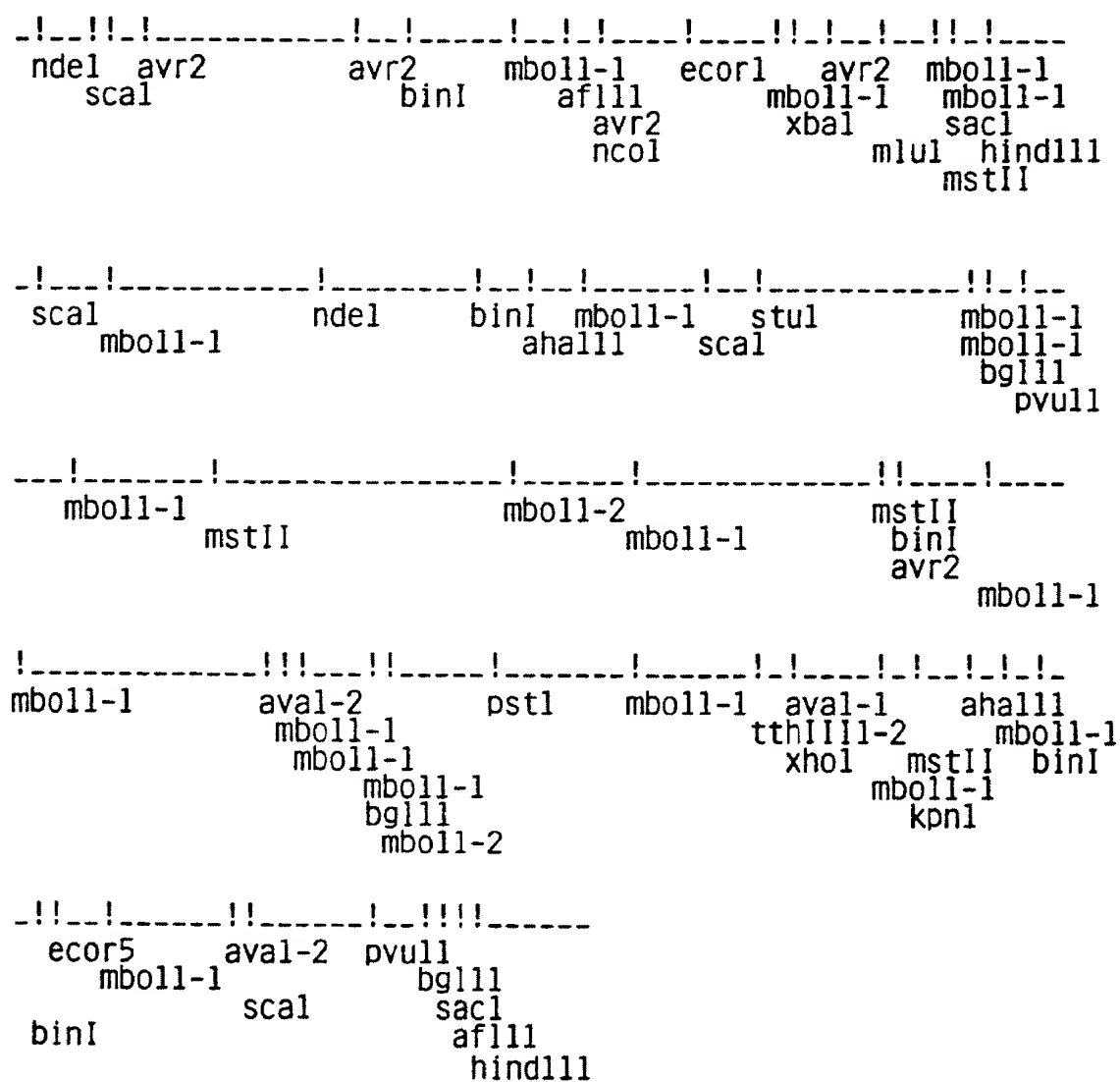


FIG. 4B

REPLACEMENT SHEET

1 CTGGAAGGGCTAATTTGGTCCCAAAGAAGACAAGAGATCCTTGATCTGTGGATCTACACAC
GACCTTCCCGATTAAACCAGGGTTTCTTCTGTTCTCTAGGAACTAGACACCTAGATGGTGTG
26 mboI, 50 bnl,

63 ACAAGGCTACTTCCCTGATTGGCAGAATTACACACCAGGGCCAGGGATCAGATATCCACT
TGTTCCGATGAAGGGACTAACCCTCTTAATGTGTGGTCCCGGTCCCTAGTCTATAGGTGA
107 bnl, 113 ecor5,

123 GACCTTTGGATGGTGTCTCAAGCTAGTACCAGTTGAGCCAGAGAAGGTAGAAGAGGCCAA
CTGGAAACCTACCACGAAGTTGATCATGGTCAACTCGGTCTCTTCCATCTTCTCCGGTT
172 mboI,

183 TGAAGGAGAGAACAACAGCTTGTTACACCTATGAGCCTGCATGGGATGGAGGACGCGGA
ACTTCCTCTCTTGTGTCGAACAATGTGGGATACTCGGACGTACCCTACCTCCTGCGCCT

243 GAAAGAAGTGTAGTGTGGAGGTTTGACAGCAAAGTATGATTTTATCATCATGGCCCGAGA
CTTTCTTCAACATCACACCTCCAACTGTCGTTTGATCGTAAAGTAGTGTACCGGGCTCT
296 aal,

303 GCTGCATCCGGAGTACTACAAAGACTGCTGACATCGAGCTTTCTACAAGGGACTTTCCGC
CGACGTAGGCCTCATGATGTTTCTGACGACTGTAGCTCGAAAGATGTTCCCTGAAAGGCG
314 sal,

363 TGGGGACTTTCCAGGGAGGCGTGGCCTGGGCGGGACTGGGGAGTGGCGTCCCTCAGATGC
ACCCCTGAAAGGTCCCTCCGCACCGGACCCGCCCTGACCCCTCACC6CAGGGAGTCTACG

423 TGCATATAAGCAGACTGCTTTTTGCTGTACTGGGTCTCTCTGGTTAGACCAGATCTGAG
ACGTATATTCTGTCTGACGAAAAACGGACATGACCCAGAGAGACCAATCTGGTCTAGACTC
474 bglI,

483 CCTGGGAGCTCTCTGGCTAACTAGGGAACCCACTGCTTAAGCCTCAATAAAGCTTGCCTT
GGACCTCGAGAGACCGATTGATCCCTTGGGTGACGAATTCGGAGTTATTTGGAACGGAA
488 sacI, 518 afI, 532 hindIII,

543 GAGTGCTTCAAGTAGTGTGTGCCGTCTGTTGTGTGACTCTGGTAACTAGAGATCCCTCA
CTCACGAAGTTCATCACACACGGGCAGACAACACACTGAGACCATTGATCTCTAGGGAGT

603 GACCCTTTTAGTCAGTGTGGAAAAATCTCTAGCAGTGGCGCCCGAACAGGGACGCGAAAG
CTGGGAAAATCAGTCACACCTTTTATAGAGATCGTCACCGCGGGCTTGTCCCTGCGCTTTC
639 narI,

663 CGAAAGTAGAACCAGAGGAGCTCTCTCGACGCAGGACTCGGCTTGCTGAAGCGCGCACAG
GCTTTCATCTTGGTCTCTCTCGAGAGAGCTGCGTCTGAGCCGAACGACTTCGCGCGTGTG
680 sacI,

723 CAAGAGGCGAGGGGCGGCGACTGGTGAGTACGCCAATTTTTGACTAGCGGAGGCTAGAAG
GTTCTCCGCTCCCGCCGCTGACCACTCATGCGGTAAAAAAGTATCGCCTCCGATCTTC

783 GAGAGAGAGATGGGTGCGAGAGCGTCCGTATTAAGCGGGGAGAATTAGATAAATGGGAA
CTCTCTCTACCCACGCTCTCGCAGCCATAATTCGCCCCCTCTTAATCTATTTACCTT

MetGlyAlaArgAlaSerValLeuSerGlyGlyGluLeuAspLysTrpGluGAG

FIG. 4C

REPLACEMENT SHEET

843 LysIleArgLeuArgProGlyGlyLysLysLysTyrLysLeuLysHisIleValTrpAla
 AAAATTCGGTTAAGGCCAGGGGGAAGAAAAAATATAAGTTAAACATATAGTATGGGCA
 TTTTAAGCCAATTCCGGTCCCCCTTCTTTTTATATTCAATTTGTATATCATACCCGT
 903 SerArgGluLeuGluArgPheAlaValAsnProGlyLeuLeuGluThrSerGluGlyCys
 AGCAGGGAGCTAGAACGATTTCGAGTCAATCCTGGCCTGTTAGAAACATCAGAAGGCTGC
 TCGTCCCTCGATCTTGCTAAGCGTCAGTTAGGACCGGACAATCTTTGTAGTCTTCCGAGC
 959 pst1,
 963 ArgGlnIleLeuGlyGlnLeuGlnProSerLeuGlnThrGlySerGluGluLeuArgSer
 AGACAAATATTGGGACAGCTACAGCCATCCCTTCAGACAGGATCAGAAGAAGCTTAGATCA
 TCTGTTTATAACCCTGTCGATGTCGGTAGGGAAGTCTGTCTAGTCTTCTTGAATCTAGT
 1002 bin1, 1008 mbol1,
 1023 LeuTyrAsnThrValAlaThrLeuTyrCysValHisGlnArgIleAspValLysAspThr
 TTATATAATACAGTAGCAACCCTCTATTGTGTACATCAAAGGATAGATGTAAAGACACC
 AATATATTATGTCATCGTTGGGAGATAACACATGTAGTTTCCTATCTACATTTTCTGTGG
 1083 LysGluAlaLeuGluLysIleGluGluGluGlnAsnLysSerLysLysLysAlaGlnGln
 AAGGAAGCTTTAGAGAAGATAGAGGAAGACAAAACAAAAGTAAGAAAAAGGCACAGCAA
 TTCCTTCGAAATCTCTTCTATCTCCTTCTCGTTTTGTTTTCAATCTTTTTCCGTGTCGT
 1087 hind111, 1097 mbol1, 1107 mbol1, p25
 1143 AlaAlaAlaAlaAlaGlyThrGlyAsnSerSerGlnValSerGlnAsnTyrProIleVal
 GCAGCAGCTGCAGCTGGCACAGGAAACAGCAGCCAGGTCAGCCAAAATTACCCTATAGTG
 CGTCGTCGACGTCGACCGTGTCTTTGTCTGTCGGTCCAGTCGGTTTTAATGGGATATCAC
 1147 pvu11, 1150 pst1, 1153 pvu11, 1156 tth111,
 1203 GlnAsnLeuGlnGlyGlnMetValHisGlnAlaIleSerProArgThrLeuAsnAlaTrp
 CAGAACCTACAGGGGCAAATGGTACATCAGGCCATATCACCTAGAACTTTAAATGCATGG
 GTCTTGATGTCCCGTTTACCATGTAGTCCGGTATAGTGGATCTTGAATTTACGTACC
 1250 aha111, 1255 ava3,
 1263 ValLysValValGluGluLysAlaPheSerProGluValIleProMetPheSerAlaLeu
 GTAAAAGTAGTAGAAGAAAAGGCTTTTCAGCCAGAAAGTAATACCCATGTTTTTCAGCATT
 CATTTCATCATCTTCTTTTCCGAAAGTCGGGTCTTCATTATGGGTACAAAAGTCGTAAT
 1275 mbol1,
 1323 SerGluGlyAlaThrProGlnAspLeuAsnThrMetLeuAsnThrValGlyGlyHisGln
 TCAGAAGGAGCCACCCACAAGATTTAAACACCATGCTAAACACAGTGGGGGGACATCAA
 AGTCTTCTCGGTGGGGTGTCTAAATTTGTGGTACGATTTGTGTCACCCCTGTAGTT
 1346 aha111,
 1383 AlaAlaMetGlnMetLeuLysGluThrIleAsnGluGluAlaAlaGluTrpAspArgVal
 GCAGCCATGCAAATGTTAAAGAGACTATCAATGAGGAAGCTGCAGAATGGGATAGAGTG
 CGTCGGTACGTTTACAATTTCTCTGATAGTTACTCTTCGACGCTTACCCTATCTCAC
 1423 pst1,
 1443 HisProValHisAlaGlyProIleAlaProGlyGlnMetArgGluProArgGlySerAsp
 CATCCAGTGCATGCAGGGCCTATTGCACAGGCCAAATGAGAGAACCAAGGGGAAGTGAC
 GTAGGTCAAGTACGTCCCGGATAACGTGGTCCGGTTTACTCTCTTGGTTCCCTTCACTG
 1451 sph1,

FIG. 4D

REPLACEMENT SHEET

1503 IleAlaGlyThrThrSerThrLeuGlnGluGlnIleGlyTrpMetThrAsnAsnProPro
 ATAGCAGGAAGTACTAGTACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCT
 TATCGTCCTTGATGATCATGGGAAGTCCTTGTTTATCCTACCTACTGTTTATTAGGTGGA

1563 IleProValGlyGluIleTyrLysArgTrpIleIleLeuGlyLeuAsnLysIleValArg
 ATCCAGTAGGAGAAATCTATAAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGA
 TAGGGTCATCCTCTTTAGATATTTTCTACCTATTAGGACCCTAATTTATTTTATCATTCT

1623 MetTyrSerProThrSerIleLeuAspIleArgGlnGlyProLysGluProPheArgAsp
 ATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGAT
 TACATATCGGGATGGTCGTAAGACCTGTATTCTGTTCTGTTTCTGGGAAATCTCTA
 1636 bstXI,

1683 TyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnAspValLysAsn
 TATGTAGACCGGTTCTATAAACTCTAAGAGCCGAACAAGCTTCACAGGATGTAAAAAT
 ATACATCTGGCCAAGATATTTTGAGATTCTCGGCTTGTTTGAAGTGTCTACATTTTTTA
 1720 hind111,

1743 TrpMetThrGluThrLeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLys
 TGGATGACAGAAACCTTGTTGGTCCAAAATGCAAACCCAGATTGTAAGACTATTTTAAAA
 ACCTACTGTCTTTGGAACAACAGGTTTTACGTTTGGGTCTAACATTCTGATAAAATTTT
 1796 aha111,

1803 AlaLeuGlyProAlaAlaThrLeuGluGluMetMetThrAlaCysGlnGlyValGlyGly
 GCATTGGGACCAGCAGCTACACTAGAAGAAATGATGACAGCATGTCAGGGAGTGGGGGGA
 CGTAACCCCTGGTCGTCGATGTGATCTTCTTTACTACTGTCTGACAGTCCCTCACCCCT
 1827 mbo11,

1863 ProGlyHisLysAlaArgValLeuAlaGluAlaMetSerGlnValThrAsnProAlaAsn
 CCCGGCCATAAAGCAAGAGTTTTGGCTGAAGCCATGAGCCAAGTAACAAATCCAGCTAAC
 GGGCCGGTATTTTCGTTCTCAAACCGACTTCGGTACTCGGTTCAATTGTTTAGGTGATTG
 p18

1923 IleMetMetGlnArgGlyAsnPheArgAsnGlnArgLysThrValLysCysPheAsnCys
 ATAATGATGCAGAGAGGCAATTTTAGGAACCAAGAAAGACTGTTAAGTGTTCATTGT
 TATTACTACGTCTCTCCGTTAAATCCTTGTTTTCTTTCTGACAATTCACAAAGTTAACA

1983 GlyLysGluGlyHisIleAlaLysAsnCysArgAlaProArgLysLysGlyCysTrpArg
 GGCAAAGAAGGGCACATAGCCAAAAATTGCAGGGCCCCTAGGAAAAAGGGCTGTTGGAGA
 CCGTTTCTTCCGTGTATCGGTTTTTAACGTCCCGGGATCCTTTTTCCCGACAACCTCT
 2014 apa1, 2019 avr2,

2043 CysGlyArgGluGlyHisGlnMetLysAspCysThrGluArgGlnAlaAsnPheLeuGly
 TGTGGAAGGGAAGGACACCAATGAAAGATTGCACTGAGAGACAGGCTAATTTTTTAGGG
 ACACCTTCCCTTCTGTGTTTTACTTTCTAACGTGACTCTCTGTCCGATTAAAAATCCC
 2102 mbo11,

2103 LysIleTrpProSerTyrLysGlyArgProGlyAsnPheLeuGlnSerArgProGluPro
 AAGATCTGGCCTTCCTACAAGGGAAGGCCAGGGAATTTTCTTCAGAGCAGACCAGAGCCA
 TTCTAGACCGGAAGGATGTTCCCTTCCGGTCCCTTAAAGAAAGTCTCGTCTGGTCTCGGT
 2104 bgl111, 2141 mbo11,

FIG. 4E

REPLACEMENT SHEET

2163 ThrAlaProProGluGluSerPheArgPheGlyGluGluLysThrThrProSerGlnLys
 ACAGCCCCACCAAGAGAGCTTCAGGTTTGGGGAGGAGAAAACAACCTCCCTCTCAGAAG
 TGTGCGGGTGGTCTTCTCTCGAAGTCCAAACCCCTCCTCTTTTGTGAGGGAGAGTCTTC
 2175 mbo11,
 2223 GlnGluProIleAspLysGluLeuTyrProLeuThrSerLeuArgSerLeuPheGlyAsn
 CAGGAGCCGATAGACAAGGAAGTGTATCCTTTAACTTCCCTCAGATCACTCTTTGGCAAC
 GTCCTCGGCTATCTGTTCTTGACATAGGAAATTGAAGGGAGTCTAGTGAGAAACCGTTG
 2283 AspProSerSerGlnOC
 GACCCCTCGTCACAATAAGGATAGGGGGCAACTAAAGGAAGCTCTATTAGATACAGGA
 CTGGGGAGCAGTGTATTCTATCCCCCGTTGATTTCCTTCGAGATAATCTATGTCCT
 2342 MetAsnLeuProGlyLysTrpLysProLysMetIle
 GCAGATGATACAGTATTAGAAGAAATGAATTTGCCAGGAAAATGGAAACCAAAAATGATA
 CGTCTACTATGTCATAATCTTCTTTACTTAAACGGTCTTTTACCTTTGGTTTTTACTAT
 2360 mbo11, 2375 bstXI,
 2402 GlyGlyIleGlyGlyPheIleLysValArgGlnTyrAspGlnIleProValGluIleCys
 GGGGGAATTGGAGGTTTTATCAAAGTAAGACAGTACGATCAGATACCTGTAGAAATCTGT
 CCCCCTTAACCTCCAAAATAGTTTCATTCTGTCATGCTAGTCTATGGACATCTTTAGACA
 2462 GlyHisLysAlaIleGlyThrValLeuValGlyProThrProValAsnIleIleGlyArg
 GGACATAAAGCTATAGGTACAGTATTAGTAGGACCTACACCTGTCAACATAATTGGAAGA
 CCTGTATTTTCGATATCCATGTCATAATCATCCTGGATGTGGACAGTTGTATTAACCTTCT
 2517 mbo11,
 2522 AsnLeuLeuThrGlnIleGlyCysThrLeuAsnPheProIleSerProIleGluThrVal
 AATCTGTTGACTCAGATTGGTTGTACTTTAAATTTCCCATTAGTCCTATTGAAACTGTA
 TTAGACAACCTGAGTCTAACCAACATGAAATTTAAAGGGTAATCAGGATAACTTTGACAT
 2548 aha111, 2577 tth1111,
 2582 ProValLysLeuLysProGlyMetAspGlyProLysValLysGlnTrpProLeuThrGlu
 CCAGTAAATTTAAAGCCAGGAATGGATGGCCCCAAAAGTTAAGCAATGGCCATTGACAGAA
 GGTCAATTTTAATTTTCGGTCTTACCTACCGGGTTTTCAATTCGTTACCGGTAACCTGTCTT
 2627 bal1, 2639 mbo11,
 2642 GluLysIleLysAlaLeuValGluIleCysThrGluMetGluLysGluGlyLysIleSer
 GAAAAAATAAAAGCATTAGTAGAGATATGTACAGAAAATGGAAAAGGAAGGGAAAATTTCA
 CTTTTTTATTTTCGTAATCATCTCTATACATGTCTTTACCTTTTCTTCCCTTTTAAAGT
 2702 LysIleGlyProGluAsnProTyrAsnThrProValPheAlaIleLysLysLysAspSer
 AAAATTGGGCCTGAAAATCCATACAATACTCCAGTATTTGCTATAAAGAAAAAAGACAGT
 TTTTAACCCGGACTTTTAGGTATGTTATGAGGTCATAAACGATATTTCTTTTTCTGTCA
 2759 scal,
 2762 ThrLysTrpArgLysLeuValAspPheArgGluLeuAsnLysArgThrGlnAspPheTrp
 ACTAAATGGAGAAAACCTAGTAGATTTTCAGAGAACTTAATAAAAGAACTCAAGACTTCTGG
 TGATTTACCTCTTTTGATCATCTAAAGTCTCTTGAATTATTTTCTTGAGTTCTGAAGACC
 2822 GluValGlnLeuGlyIleProHisProGlnGlyOC
 GAAGTTTCAGTTAGGAATACCACACCCGAGGGTTAAAAAAGAAAAAATCAGTAACAGTA
 CTTCAAGTCAATCCTTATGGTGTGGGCGTCCCAATTTTTTTCTTTTTTAGTCATTGTCAT

FIG. 4F

REPLACEMENT SHEET

2882 TTGGATGTGGGTGATGCATACTTTTCAGTTCCTTAGATAAAGACTTTAGAAAGTATACTG
AACCTACACCCACTACGTATGAAAAGTCAAGGGAATCTATTTCTGAAATCTTTCATATGAC
2895 ava3,

2943 CATTTACCATACCTAGTATAAACAATGAGACACCAGGGATTAGATATCAGTACAATGTGG
GTAAATGGTATGGATCATATTTGTTACTCTGTGGTCCCTAATCTATAGTCATGTTACACC
2985 ecor5,

3003 LeuProGlnGlyTrpLysGlySerProAlaIlePheGlnSerSerMetThrLysIleLeu
CTGCCACAGGGATGGAAAGGATCACCAGCAATATTCCAAAGTAGCATGACAAAAATCTTA
GACGGTGTCCCTACCTTTCTAGTGGTCGTTATAAGGTTTCATCGTACTGTTTTTAGAAT
3003 tth1111, 3006 bstXI, 3021 binI,

3063 GluProPheArgLysGlnAsnProAspIleValIleTyrGlnTyrMetAspAspLeuTyr
GAGCCTTTTAGAAAAACAGAATCCAGACATAGTTATCTATCAATACATGGATGATTTGTAT
CTCGGAAAATCTTTTGTCTTAGGTCTGTATCAATAGATAGTTATGTACCTACTAACATA

3123 ValGlySerAspLeuGluIleGlyGlnHisArgThrLysIleGluGluLeuArgGlnHis
GTAGGATCTGACTTAGAAATAGGGCAGCATAGAACAAAAATAGAGGAACCTGAGACAGCAT
CATCCTAGACTGAATCTTTATCCCGTCGTATCTTGTTTTATCTCCTTGACTCTGTCGTA
3126 binI, 3171 tth1111,

3183 LeuLeuArgTrpGlyPheThrThrProAspLysLysHisGlnLysGluProProPheLeu
CTGTTGAGGTGGGGATTTACCACACCAGACAAAAACATCAGAAAGAACCTCCATTCTT
GACAACTCCACCCCTAAATGGTGTGGTCTGTTTTTGTAGTCTTCTTGAGGTAAGGAA
3234 bstXI,

3243 TrpMetGlyTyrGluLeuHisProAspLysTrpThrValGlnProIleMetLeuProGlu
TGGATGGGTATGAACTCCATCCTGATAAATGGACAGTACAGCCTATAATGCTGCCAGAA
ACCTACCCAATACTTGAGGTAGGACTATTTACCTGTCATGTCGGATATTACGACGGTCTT

3303 LysAspSerTrpThrValAsnAspIleGlnLysLeuValGlyLysLeuAsnTrpAlaSer
AAAGACAGCTGGACTGTCAATGACATACAGAAAGTTAGTGGGAAAATTGAATTGGGCAAGT
TTTCTGTCGACCTGACAGTTACTGTATGTCTTCAATCACCTTTTAACTTAACCCGTTCA
3308 pvu11,

3363 GlnIleTyrAlaGlyIleLysValLysGlnLeuCysLysLeuLeuArgGlyThrLysAla
CAGATTTATGCAGGGATTAAAGTAAAGCAGTTATGTAAACTCCTTAGAGGAACCAAAGCA
GTCTAAATACGTCCCTAATTTCAATTCGTCAATACATTTGAGGAATCTCCTTGTTTTCGT

3423 LeuThrGluValIleProLeuThrGluGluAlaGluLeuGluLeuAlaGluAsnArgGlu
CTAACAGAAAGTAATACCACTAACAGAAGAAGCAGAGCTAGAACTGGCAGAAAACAGGGAG
GATTGTCTTCATTATGGTGATTGTCTTCTCGTCTCGATCTTGACCGTCTTTTGTCCCTC
3447 mbo11,

3483 IleLeuLysGluProValHisGluValTyrTyrAspProSerLysAspLeuValAlaGlu
ATTCTAAAAGAACCACTACATGAAGTATATTATGACCCATCAAAGACTTAGTAGCAGAA
TAAGATTTTCTTGGTCATGTACTTCATATAATACTGGGTAGTTTTCTGAATCATCGTCTT

3543 IleGlnLysGlnGlyGlnGlyGlnTrpThrTyrGlnIleTyrGlnGluProPheLysAsn
ATACAGAAAGCAGGGGCAAGGCCAATGGACATATCAAATTTATCAAGAGCCATTTAAAAAT
TATGTCTTCGTCCCGTTCCGGTTACCTGTATAGTTTAAATAGTTCTCGGTAATTTTTA
3594 aha111,

FIG. 4G

REPLACEMENT SHEET

3603 LeuLysThrGlyLysTyrAlaArgMetArgGlyAlaHisThrAsnAspValLysGlnLeu
 CTGAAAACAGGAAAGTATGCAAGGATGAGGGGTGCCACACTAATGATGTAAACAGTTA
 GACTTTTGTCTTTTCATACGTTCTACTCCCCACGGGTGTGATTACTACATTTTGTCAAT
 3659 hpa1,
 3663 ThrGluAlaValGlnLysValSerThrGluSerIleValIleTrpGlyLysIleProLys
 ACAGAGGCAGTGCAAAAAGTATCCACAGAAAGCATAGTAATATGGCGAAAGATTCTAAA
 TGTCTCCGTCACGTTTTTCATAGGTGTCTTTCGTATCATTATACCCCTTTCTAAGGATTT
 3723 PheLysLeuProIleGlnLysGluThrTrpGluAlaTrpTrpMetGluTyrTrpGlnAla
 TTTAACTACCCATACAAAAGGAAACATGGGAAGCATGGTGGATGGAGTATTGGCAAGCT
 AAATTTGATGGGTATGTTTTCTTTGTACCCCTTCGTACCACCTACCTCATAACCGTTTGA
 3723 aha111,
 3783 ThrTrpIleProGluTrpGluPheValAsnThrProProLeuValLysLeuTrpTyrGln
 ACCTGGATTCTGAGTGGGAGTTTTGTCAATACCCCTCCCTTAGTGAAATTATGGTACCAG
 TGGACCTAAGGACTCACCTCAAACAGTTATGGGGAGGGAATCACTTTAATACCATGGTC
 3835 kpn1,
 3843 LeuGluLysGluProIleValGlyAlaGluThrPheTyrValAspGlyAlaAlaAsnArg
 TTAGAGAAAGAACCCATAGTAGGAGCAGAACTTTCTATGTAGATGGGGCAGCTAATAGG
 AATCTCTTTCTTGGGTATCATCTCGTCTTTGAAAGATACATCTACCCCGTCGATTATCC
 3903 GluThrLysLeuGlyLysAlaGlyTyrValThrAspArgGlyArgGlnLysValValSer
 GAGACTAAATTAGGAAAAGCAGGATATGTTACTGACAGAGGAAGACAAAAGTTGTCTCC
 CTCTGATTTAATCCTTTTCGTCTATACAATGACTGTCTCCTTCTGTTTTTCAACAGAGG
 3943 mbol1,
 3963 IleAlaAspThrThrAsnGlnLysThrGluLeuGlnAlaIleHisLeuAlaLeuGlnAsp
 ATAGCTGACACAACAAATCAGAAGACTGAATTACAAGCAATTCATCTAGCTTTGCAGGAT
 TATCGACTGTGTTGTTAGTCTTCTGACTTAATGTTTCGTTAAGTAGATCGAAACGTCCTA
 3983 mbol1,
 4023 SerGlyLeuGluValAsnIleValThrAspSerGlnTyrAlaLeuGlyIleIleGlnAla
 TCGGGATTAGAAGTAAACATAGTAACAGACTCACAATATGCATTAGGAATCATTCAAGCA
 AGCCCTAATCTTCATTTGTATCATTGTCTGAGTGTTATACGTAATCCTTAGTAAGTTCGT
 4060 ava3,
 4083 GlnProAspLysSerGluSerGluLeuValSerGlnIleIleGluGlnLeuIleLysLys
 CAACCAGATAAGAGTGAATCAGAGTTAGTCAGTCAAATAATAGAGCAGTTAATAAAAAAG
 GTTGGTCTATTCTCACTTAGTCTCAATCAGTCAGTTTATTATCTCGTCAATTATTTTTTC
 4143 GluLysValTyrLeuAlaTrpValProAlaHisLysGlyIleGlyGlyAsnGluGlnVal
 GAAAAGGTCTACCTGGCATGGGTACCAGCACACAAAGGAATTGGAGGAAATGAACAAGTA
 CTTTTCCAGATGGACCGTACCCATGGTCGTGTGTTTCCTTAACCTCCTTTACTTGTTTCAT
 4163 kpn1,
 4203 AspLysLeuValSerAlaGlyIleArgLysValLeuPheLeuAsnGlyIleAspLysAla
 GATAAATTAGTCAGTGCTGGAATCAGGAAAGTACTATTTTTGAATGGAATAGATAAGGCC
 CTATTTAATCAGTCACGACCTTAGTCCTTTCATGATAAAAACTTACCTTATCTATTCCGG
 4232 sca1,

FIG. 4H

REPLACEMENT SHEET

4263 GlnGluGluHisGluLysTyrHisSerAsnTrpArgAlaMetAlaSerAspPheAsnLeu
CAAGAAGAACATGAGAAATATCACAGTAATTGGAGAGCAATGGCTAGTGATTTTAACTG
GTTCTTCTTGTACTCTTTATAGTGTCATTAACCTCTCGTTACCGATCACTAAAATTGGAC
4266 mbo11,

4323 ProProValValAlaLysGluIleValAlaSerCysAspLysCysGlnLeuLysGlyGlu
CCACCTGTAGTAGCAAAAGAAATAGTAGCCAGCTGTGATAAATGTCAGCTAAAAGGAGAA
GGTGGACATCATCGTTTTCTTTATCATCGGTCGACACTATTTACAGTCGATTTTCTCTT
4352 pvu11,

4383 AlaMetHisGlyGlnValAspCysSerProGlyIleTrpGlnLeuAspCysThrHisLeu
GCCATGCATGGACAAGTAGACTGTAGTCCAGGAATATGGCAACTAGATTGTACACATCTA
CGGTACGTACCTGTTTCATCTGACATCAGGTCCTTATACCGTTGATCTAACATGTGTAGAT
4386 ava3, 4410 bstXI, 4439 xba1,

4443 GluGlyLysIleIleLeuValAlaValHisValAlaSerGlyTyrIleGluAlaGluVal
GAAGGAAAAATTATCCTGGTAGCAGTTCATGTAGCCAGTGGATATATAGAAGCAGAAGTT
CTTCTTTTTTAATAGGACCATCGTCAAGTACATCGGTCACCTATATATCTTCGTCTTCAA
4497 xmn1,

4503 IleProAlaGluThrGlyGlnGluThrAlaTyrPheLeuLeuLysLeuAlaGlyArgTrp
ATTCCAGCAGAGACAGGGCAGGAAACAGCATATTTTCTCTTAAATAGCAGGAAGATGG
TAAGGTCGTCTCTGTCCCGTCCTTTGTCGTATAAAAGAGAATTTTAATCGTCCTTCTACC
4555 mbo11, 4560 bal1,

4563 ProValLysThrIleHisThrAspAsnGlySerAsnPheThrSerThrThrValLysAla
CCAGTAAAAACAATACATACAGACAATGGCAGCAATTTACCCAGTACTACGGTTAAGGCC
GGTCATTTTTGTTATGTATGTCTGTTACCGTCGTTAAAGTGGTTCATGATGCCAATTCGGG
4605 sca1,

4623 AlaCysTrpTrpAlaGlyIleLysGlnGluPheGlyIleProTyrAsnProGlnSerGln
GCCTGTTGGTGGGCAGGGATCAAGCAGGAATTTGGCATTCCCTACAATCCCCAAAGTCAA
CGGACAACCAACCCGTCCCTAGTTCGTCTTAAACCGTAAGGGATGTTAGGGGTTTCAGTT
4639 bin1,

4683 GlyValValGluSerMetAsnAsnGluLeuLysLysIleIleGlyGlnValArgAspGln
GGAGTAGTAGAATCTATGAATAATGAATTAAGAAAAATTATAGGACAGGTAAGAGATCAG
CCTCATCATCTTAGATACTTATTACTTAATTTCTTTAATATCCTGTCCATTCTCTAGTC
4743 AlaGluHisLeuLysThrAlaValGlnMetAlaValPheIleHisAsnPheLysArgLys
GCTGAACACCTTAAGACAGCAGTACAAATGGCAGTATTCATCCACAATTTTAAAAGAAAA
CGACTTGTGGAATTCTGTCTCATGTTTACCGTCATAAGTAGGTGTTAAATTTTCTTTT
4752 alf11, 4791 aha111,

4803 GlyGlyIleGlyGlyTyrSerAlaGlyGluArgIleValAspIleIleAlaThrAspIle
GGGGGGATTGGGGGATACAGTGCAGGGGAAAGAATAGTAGACATAATAGCAACAGACATA
CCCCCTAACCCCTATGTCACGTCCCTTTCTTATCATCTGTATTATCGTTGTCTGTAT
4863 GlnThrLysGluLeuGlnLysGlnIleThrLysIleGlnAsnPheArgValTyrTyrArg
CAAATAAAGAACTACAAAAGCAAATTACAAAAATTCAAATTTTTCGGGTTTATTACAGG
GTTTGATTTCTTGATGTTTTCGTTTAATGTTTTTAAGTTTTTAAAGCCCAATAATGTCC

FIG. 4I

REPLACEMENT SHEET

4923 AspAsnLysAspProLeuTrpLysGlyProAlaLysLeuLeuTrpLysGlyGluGlyAla
 GACAACAAAGATCCCCTTTGGAAAGGACCAGCAAAGCTTCTCTGGAAAGGTGAAGGGGCA
 CTGTTGTTTCTAGGGGAAACCTTTCCTGGTCGTTTCGAAGAGACCTTCCACTTCCCCGT
 4956 hindIII,
 4983 ValValIleGlnAspAsnSerAspIleLysValValProArgArgLysAlaLysIleIle
 GTAGTAATACAAGATAATAGTGACATAAAAGTAGTGCCAAGAAGAAAAGCAAAAATCATT
 CATCATTATGTTCTATTATCACTGTATTTTCATCACGGTTCTTCTTTTCGTTTTTAGTAA
 5023 mboII,
 5043 MetGluAsnArgTrpGlnValMetIleValTrpGlnValAspArgMetArgIle
 ArgAspTyrGlyLysGlnMetAlaGlyAspAspCysValAlaSerArgGlnAspGluAsp
 AGGGATTATGGAAACAGATGGCAGGTGATGATTGTGTGGCAAGTAGACAGGATGAGGAT
 TCCCTAATACCTTTTGTCTACCGTCCACTACTAACACACCGTTTCATCTGTCTACTCCTA
 5103 ArgTrpTrpLysSerLeuValLysHisHisMetTyrIleSerLysLysAlaLysGlyTrp
 AM
 TAGAACATGGAAAAGTTTAGTAAACACCATATGTATATTTCAAAGAAAGCTAAAGGATGG
 ATCTTGACCTTTTCAAATCATTTTGTGGTATACATATAAAGTTTCTTTCGATTTCCTACC
 5131 ndel,
 5163 PheTyrArgHisHisTyrGluSerThrHisProArgValSerSerGluValHisIle
 TTTTATAGACATCACTATGAAAGTACTCATCCAAGAGTAAGTTTCAGAAGTACACATC
 AAAATATCTGTAGTGATACTTTCATGAGTAGGTTCTCATTCAAGTCTTCATGTGTAG
 5185 scal,
 5221 ProLeuGlyAspAlaLysLeuValIleThrThrTyrTrpGlyLeuHisThrGlyGluArg
 CCCCTAGGGGATGCTAAATTGGTAATAACAACATATTGGGGTCTGCATACAGGAGAAAGA
 GGGGATCCCCTACGATTTAACCATTATTGTTGTATAACCCAGACGTATGTCTCTTTCT
 5223 avr2,
 5281 GluTrpHisLeuGlyGlnGlyValAlaIleGluTrpArgLysLysLysTyrSerThrGln
 GAATGGCATTGTTGGCCAGGGAGTCGCCATAGAATGGAGGAAAAAGAAATATAGCACACAA
 CTTACCGTAAACCCGGTCCCTCAGCGGTATCTTACCTCCTTTTTCTTTATATCGTGTGTT
 5341 ValAspProGlyLeuAlaAspGlnLeuIleHisLeuHisTyrPheAspCysPheSerGlu
 GTAGACCCTGGCCTAGCAGACCACTAATTCATCTGCATTATTTTGATTGTTTTTCAGAA
 CATCTGGGACCGGATCGTCTGTTGATTAAGTAGACGTAATAAACTAACAAAAAGTCTT
 5401 SerAlaIleLysAsnAlaIleLeuGlyTyrArgValSerProArgCysGluTyrGlnAla
 TCTGCTATAAAAAATGCCATATTAGGATATAGAGTTAGTCCTAGGTGTGAATATCAAGCA
 AGACGATATTTTTACGGTATAATCCTATATCTCAATCAGGATCCACACTTATAGTTCGT
 5440 avr2,
 5461 GlyHisAsnLysValGlySerLeuGlnTyrLeuAlaLeuAlaAlaLeuIleThrProLys
 GGACATAACAAGGTAGGATCTCTACAATACTTGGCACTAGCAGCATTAAATAACACCAAAA
 CCTGTATTGTTCCATCTAGAGATGTTATGAACCGTGATCGTCGTAATTATTGTGTTTT
 5476 binI,
 5521 LysThrLysProProLeuProSerValLysLysLeuThrGluAspArgTrpAsnLysPro
 AAGACAAAGCCACCTTTGCCTAGTGTTAAGAACTGACAGAGGATAGATGGAACAAGCCC
 TTCTGTTTCGGTGGAAACGGATCACAATTCTTTGACTGTCTCCTATCTACCTTGTTCCGGG

FIG. 4J

REPLACEMENT SHEET

5581 GlnLysThrLysGlyHisArgGlySerHisThrMetAsnGlyHisAM
 CAGAAGACCAAGGGCCACAGAGGGAGCCATACAATGAATGGACACTAGAGCTTTTAGAGG
 GTCTTCTGGTTCCCGGTGTCTCCCTCGGTATGTTACTTACCTGTGATCTCGAAAATCTCC_

5583 mbol1,

5641 AGCTTAAGAGAGAAGCTGTTAGACATTTTCTAGGCCATGGCTCCATAGCTTAGGACAAT
 TCGAATTCTCTCTTCGACAATCTGTAAAAGGATCCGGTACCGAGGTATCGAATCCTGTTA

5643 afl11, 5670 avr2, 5676 nco1,

5701 ATATCTATGAACTTATGGGGATACTTGGGCAGGAGTGGAAGCCATAATAAGAATTCTGC
 TATAGATACTTTGAATACCCCTATGAACCCGTCCTCACCTTCGGTATTATTCTTAAGACG

5752 ecor1,

5761 AACAACTGCTGTTTATTCATTTTCTAGCAATTGGGTGTCAACATAGCAGAATAGGCATTATTC
 TTGTTGACGACAAATAAGTAAAGTCTTAACCCACAGTTGTATCGTCTTATCCGTAATAAG

5821 AACAGAGGAGAGCAAGAAGAAATGGAGCCAGTAGATCCTAATCTAGAGCCCTGGAAGCAT
 TTGTCTCCTCTCGTTCTTCTTTACCTCGGTATCTAGGATTAGATCTCGGGACCTTCGTA

5836 mbol1, 5862 xba1,

5881 CCAGGAAGTCAGCCTAGGACTGCTTGTAAACAATTGCTATTGTAAAAAGTGTGCTTTTCAT
 GGTCTTCAGTCGGATCCTGACGAACATTGTTAACGATAACATTTTCAACAACGAAAGTA

5893 avr2,

5941 TGCTACGCGTGTTCACAAGAAAAGGCTTAGGCATCTCCTATGGCAGGAAGAAGCGGAGA
 ACGATGCGCACAAAGTGTCTTTTCCGAATCCGTAGAGGATACCGTCCTTCTTCGCCTCT

5945 mlul, 5988 mbol1,

6001 CAGCGACGAAGAGCTCCTCAGGACAGTCAGACTCATCAAGCTTCTCTATCAAAGCAGTAA
 GTCGCTGCTTCTCGAGGAGTCCTGTGAGTCTGAGTAGTTCGAAGAGATAGTTTCGTCAAT

6008 mbol1, 6011 sac1, 6016 mstII, 6038 hindIII,

6061 GTAGTAAATGTAATGCAATCTTTACAAATATTAGCAATAGTATCATTAGTAGTAGTAGCA
 CATCATTTACATTACGTTAGAAATGTTTATAATCGTTATCATAGTAATCATCATCATCGT

6121 ATAATAGCAATAGTTGTGTGGACCATAGTACTCATAGAATATAGGAAAATATTAAGACAA
 TATTATCGTTATCAACACACCTGGTATCATGAGTATCTTATATCCTTTTATAATTCTGTT

6147 scal,

6181 AGAAAATAGACAGATTAATTGATAGAATAAGAGAAAAAGCAGAAGACAGTGGCAATGAAA
 TCTTTTATCTGTCTAATTAACATCTTATTCTCTTTTTCGTCTTCTGTACCGTTACTTT

6222 mbol1,

6241 ValLysGlyThrArgArgAsnTyrGlnHisLeuTrpArgTrpGlyThrLeuLeuLeuGly
 GTGAAGGGGACCAGGAGGAATTATCAGCACTTGTGGAGATGGGGCACCTTGCTCCTTGGG
 CACTTCCCTGGTCTCCTTAATAGTCGTGAACACCTCTACCCCGTGGAAACGAGGAACCC

6301 MetLeuMetIleCysSerAlaThrGluLysLeuTrpValThrValTyrTyrGlyValPro
 ATGTTGATGATCTGTAGTGCTACAGAAAAATTGTGGGTACAGTTTATTATGGAGTACCT
 TACAACCTACTAGACATCACGATGTCTTTTAAACCCAGTGTCAAATAATACCTCATGGA

MetLys ENV

FIG. 4K

REPLACEMENT SHEET

6361 ValTrpLysGluAlaThrThrThrLeuPheCysAlaSerAspAlaArgAlaTyrAspThr
GTGTGGAAAGAAGCAACTACCACTCTATTTTGTGCATCAGATGCTAGAGCATATGATACA
CACACCTTTCTTCGTTGATGGTGAGATAAAACACGTAGTCTACGATCTCGTATACTATGT
6410 ndel,

6421 GluValHisAsnValTrpAlaThrHisAlaCysValProThrAspProAsnProGlnGlu
GAGGTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAACCCACAAGAA
CTCCATGTATTACAAACCCGGTGTGTACGGACACATGGGTGTCTGGGGTTGGGTGTTCTT

6481 ValValLeuGlyAsnValThrGluAsnPheAsnMetTrpLysAsnAsnMetValGluGln
GTAGTATTGGGAAATGTGACAGAAAATTTTAAACATGTGGAAAAATAACATGGTAGAACAG
CATCATAACCCCTTTACACTGTCTTTTAAAATTGTACACCTTTTTATTGTACCATCTTGTC

6541 MetGlnGluAspIleIleSerLeuTrpAspGlnSerLeuLysProCysValLysLeuThr
ATGCAGGAGGATATAATCAGTTTATGGGATCAAAGCCTAAAGCCATGTGTAAAATTAACC
TACGTCTCCTATATTAGTCAAATACCTAGTTTCGGATTCGGTACACATTTTAATTGG
6567 binI,

6601 ProLeuCysValThrLeuAsnCysThrAspLeuGlyLysAlaThrAsnThrAsnSerSer
CCACTCTGTGTTACTTTAAATTGCACTGATTTGGGGAAGGCTACTAATACCAATAGTAGT
GGTGAGACACAATGAAATTTAACGTGACTAAACCCCTTCCGATGATTATGGTTATCATCA
6615 aha111,

6661 AsnTrpLysGluGluIleLysGlyGluIleLysAsnCysSerPheAsnIleThrThrSer
AATTGGAAAGAAGAAATAAAAGGAGAAATAAAAACTGCTCTTTCAATATCACCACAAGC
TTAACCTTTCTTTCTTTATTTTCTCTTTATTTTTTGACGAGAAAGTTATAGTGGTGTTCG
6670 mbo11,

6721 IleArgAspLysIleGlnLysGluAsnAlaLeuPheArgAsnLeuAspValValProIle
ATAAGAGATAAGATTCAAGAAAGAAATGCACTTTTTTCGTAACCTTGATGTAGTACCAATA
TATTCTCTATTCTAAGTCTTTCTTTTACGTGAAAAAGCATTGGAACACATCATGGTTAT

6781 AspAsnAlaSerThrThrThrAsnTyrThrAsnTyrArgLeuIleHisCysAsnArgSer
GATAATGCTAGTACTACTACCAACTATACCAACTATAGGTTGATACATTGTAACAGATCA
CTATTACGATCATGATGATGGTTGATATGGTTGATATCCAACATGTAAACATTGTCTAGT
6790 scal,

6841 ValIleThrGlnAlaCysProLysValSerPheGluProIleProIleHisTyrCysThr
GTCATTACACAGGCCTGTCCAAAGGTATCATTTGAGCCAATTCACATACATTATTGTACC
CAGTAATGTGTCCGGACAGGTTTCCATAGTAAACTCGGTTAAGGGTATGTAATAACATGG
6851 stu1,

6901 ProAlaGlyPheAlaIleLeuLysCysAsnAsnLysThrPheAsnGlyLysGlyProCys
CCGGCTGGTTTTGCGATTCTAAAGTGTAAATAAAACGTTCAATGGAAAAGGACCATGT
GGCCGACCAAACGCTAAGATTTACATTATTATTTTGCAAGTTACCTTTTCTGGTACA

6961 ThrAsnValSerThrValGlnCysThrHisGlyIleArgProIleValSerThrGlnLeu
ACAAATGTCAGCACAGTACAATGTACACATGGAATTAGGCCAATAGTGTCAACTCAACTG
TGTTTACAGTCGTGTCATGTTACATGTGTACCTTAATCCGGTTATCACAGTTGAGTTGAC

7021 LeuLeuAsnGlySerLeuAlaGluGluGluValValIleArgSerAspAsnPheThrAsn
CTGTTAAATGGCAGTCTAGCAGAAGAAGAGGTAGTAATTAGATCTGACAATTTTACGAAC
GACAATTTACCGTCAGATCGTCTTCTTCTCCATCATTAATCTAGACTGTTAAAGTGCTTG
7042 mbo11, 7045 mbo11, 7060 bgl11,

FIG. 4L

REPLACEMENT SHEET

7081 AsnAlaLysThrIleIleValGlnLeuAsnGluSerValAlaIleAsnCysThrArgPro
 AATGCTAAAACCATATAGTACAGCTGAATGAATCTGTAGCAATTAAGTACAAGACCC
 TTACGATTTTGGTATTATCATGTCGACTTACTTAGACATCGTTAATTGACATGTTCTGGG
 7102 pvu11,
 7141 AsnAsnAsnThrArgLysSerIleTyrIleGlyProGlyArgAlaPheHisThrThrGly
 AACACAATACAAGAAAAAGTATCTATATAGGACCAGGGAGAGCATTTCATACAACAGGA
 TTGTTGTTATGTTCTTTTTCATAGATATATCCTGGTCCCTCTCGTAAAGTATGTTGTCT
 7199 mbo11,
 7201 ArgIleIleGlyAspIleArgLysAlaHisCysAsnIleSerArgAlaGlnTrpAsnAsn
 AGAATAATAGGAGATATAAGAAAAAGCACATTGTAACATTAGTAGAGCACAATGGAATAAC
 TCTTATTATCCTCTATATTCTTTTCGTGTAACATTGTAATCATCTCGTGTACCTTATTG
 7261 ThrLeuGluGlnIleValLysLysLeuArgGluGlnPheGlyAsnAsnLysThrIleVal
 ACTTTAGAACAGATAGTTAAAAAATTAAGAGAACAGTTTGGGAATAATAAAACAATAGTC
 TGAAATCTTGCTATCAATTTTTTAATTCTCTTGTCAAACCTTATTATTTTGTATCAG
 7321 PheAsnGlnSerSerGlyGlyAspProGluIleValMetHisSerPheAsnCysArgGly
 TTTAATCAATCCTCAGGAGGGGACCCAGAAATTGTAATGCACAGTTTTAATTGTAGAGGG
 AAATTAGTTAGGAGTCCTCCCCTGGGTCTTTAACATTACGTGTCAAATTAACATCTCCC
 7331 mstII,
 7381 GluPhePheTyrCysAsnThrThrGlnLeuPheAsnAsnThrTrpArgLeuAsnHisThr
 GAATTTTTCTACTGTAATACAACAACACTGTTTAATAATACATGGAGGTTAAATCACACT
 CTTAAAAAGATGACATTATGTTGTGTTGACAAATTATTATGTACCTCCAATTTAGTGTGA
 7441 GluGlyThrLysGlyAsnAspThrIleIleLeuProCysArgIleLysGlnIleIleAsn
 GAAGGAACTAAAGGAAATGACACAATCATACTCCCATGTAGAATAAAACAATTATAAAC
 CTTCTTGATTTCCTTTACTGTGTTAGTATGAGGGTACATCTTATTTTGTTAATATTG
 7501 MetTrpGlnGluValGlyLysAlaMetTyrAlaProProlleGlyGlyGlnIleSerCys
 ATGTGGCAGGAAGTAGGAAAAGCAATGTATGCCCTCCCATTGGAGGACAAATTAGTTGT
 TACACCGTCCTTCATCCTTTTCGTTACATACGGGGAGGGTAACCTCCTGTTTAATCAACA
 7561 SerSerAsnIleThrGlyLeuLeuLeuThrArgAspGlyGlyThrAsnValThrAsnAsp
 TCATCAAATATTACAGGGCTGCTATTAACAAGAGATGGTGGTACAAATGTAACATAATGAC
 AGTAGTTTATAATGTCCCGACGATAATTGTTCTCTACCACTGTTTACATTGATTACTG
 7621 ThrGluValPheArgProGlyGlyGlyAspMetArgAspAsnTrpArgSerGluLeuTyr
 ACCGAGGTCTTCAGACCTGGAGGAGGAGATATGAGGGACAATTGGAGAAGTGAATTATAT
 TGGCTCCAGAAAGTCTGGACCTCCTCTATACTCCCTGTTAACCTCTTCACTTAATATA
 7628 mbo11,
 7681 LysTyrLysValIleLysIleGluProLeuGlyIleAlaProThrLysAlaLysArgArg
 AAATATAAAGTAATAAAAATTGAACATTAGGAATAGCACCCACCAAGGCAAAGAGAAGA
 TTTATATTTTCAATTATTTTAACTTGGAATCCTTATCGTGGGTGGTTCCGTTTCTCTCT
 7736 mbo11,
 7741 ValValGlnArgGluLysArgAlaValGlyIleValGlyAlaMetPheLeuGlyPheLeu
 GTGGTGCAGAGAGAAAAAAGAGCAGTGGGAATAGTAGGAGCTATGTTCTTTGGGTTCTTG
 CACCACGTCTCTTTTTTCTCGTCACCTTATCATCCTCGATACAAGGAACCCAAGAAC
 7801 GlyAlaAlaGlySerThrMetGlyAlaValSerLeuThrLeuThrValGlnAlaArgGln
 GGAGCAGCAGGAAGCACTATGGGCGCAGTGTCTATTGACGCTGACGGTACAGGCCAGACAA
 CCTCGTCGTCCTTCGTGATACCCGCGTCACAGTAACTGCGACTGCCATGTCCGGTCTGTT

FIG. 4M

REPLACEMENT SHEET

7861 LeuLeuSerGlyIleValGlnGlnGlnAsnAsnLeuLeuArgAlaIleGluAlaGlnGln
 TTATTGTCTGGTATAGTGCAACAGCAGAACAATTTGCTGAGGGCTATTGAGGCGCAACAA
 AATAACAGACCATATCACGTTGTCGTCTTGTAAACGACTCCCATAACTCCGCGTTGTT
 7921 HisLeuLeuGlnLeuThrValTrpGlyIleLysGlnLeuGlnAlaArgValLeuAlaVal
 CATCTGTTGCAACTCACAGTCTGGGGCATCAAGCAGCTCCAGGCAAGAGTCCTGGCTGTG
 GTAGACAACGTTGAGTGTCTAGACCCCGTAGTTCGTCGAGGTCCGTTCTCAGGACCGACAC
 7981 GluArgTyrLeuArgAspGlnGlnLeuLeuGlyIleTrpGlyCysSerGlyLysLeuIle
 GAAAGATACCTAAGGGATCAACAGCTCCTAGGGATTTGGGGTTGCTCTGGAAACTCATT
 CTTTCTATGGATTCCCTAGTTGTCGAGGATCCCTAAACCCCAACGAGACCTTTTGAGTAA
 7989 mstII, 7995 binI, 8007 avr2,
 8041 CysThrThrAlaValProTrpAsnAlaSerTrpSerAsnLysSerLeuGluAspIleTrp
 TGCACCACTGCTGTGCCTTGGAATGCTAGTTGGAGTAATAAATCTCTGGAAGACATTTGG
 ACGTGGTGACGACACGGAACCTTACGATCAACCTCATTATTTAGAGACCTTCTGTAAACC
 8089 mbol1,
 8101 AspAsnMetThrTrpMetGlnTrpGluArgGluIleAspAsnTyrThrAsnThrIleTyr
 GATAACATGACCTGGATGCAAGTGGGAAAGAGAAATTGACAATTACACAAACACAATATAC
 CTATTGTACTGGACCTACGTCACCCCTTCTCTTTAACTGTTAATGTGTTTGTGTTATATG
 8161 ThrLeuLeuGluGluSerGlnAsnGlnGlnGluLysAsnGluGlnGluLeuLeuGluLeu
 ACCTTACTTGAAGAATCGCAGAACCAACAAGAAAAAGATGAACAAGAATTATTAGAATTG
 TGAATGAACCTTCTAGCGTCTTGGTTGTTCTTTTCTTACTTGTCTTAAATAATCTTAAC
 8170 mbol1,
 8221 AspLysTrpAlaSerLeuTrpAsnTrpPheSerIleThrAsnTrpLeuTrpTyrIleLys
 GATAAGTGGGCAAGTTTGTGGAATTGGTTTAGCATAAACAACTGGCTGTGGTATATAAAG
 CTATTCACCCGTTCAAACACCTTAACCAAATCGTATTGTTTGACCGACACCATATATTTCT
 8281 IlePheIleMetIleValGlyGlyLeuValGlyLeuArgIleValPheAlaValLeuSer
 ATATTCATAATGATAGTAGGAGGCTTGGTAGGTTTAAGAATAGTTTTTCTGTGCTTTCT
 TATAAGTATTACTATCATCCTCCGAACCATCCAAATCTTATCAAAAACGACACGAAAGA
 8341 IleValAsnArgValArgGlnGlyTyrSerProLeuSerPheGlnThrArgLeuProVal
 ATAGTGAATAGAGTTAGGCAGGGATACTCACCATTGTCTTTTCTAGACCCGCTCCAGTC
 TATCACTTATCTCAATCCGTCCCTATGAGTGGTAACAGTAAAGTCTGGGCGGAGGGTCAG
 8400 aval,
 8401 ProArgGlyProAspArgProAspGlyIleGluGluGluGlyGlyGluArgAspArgAsp
 CCGAGGGGACCCGACAGGCCCGACGGAATCGAAGAAGAAGGTGGAGAGAGAGACAGAGAC
 GGCTCCCCTGGGCTGTCCGGGCTGCCTTAGCTTCTTCTCCACCTCTCTCTCTGTCTCTG
 8431 mbol1, 8434 mbol1,
 8461 ArgSerValArgLeuValAspGlyPheLeuAlaLeuIleTrpGluAspLeuArgSerLeu
 AGATCCGTTTCGATTAGTGGATGGATTCTTAGCACTTATCTGGGAAGATCTGCGGAGCCTG
 TCTAGGCAAGCTAATCACCTACCTAAGAATCGTGAATAGACCCTTCTAGACGCCTCGGAC
 8503 mbol1, 8505 bgl11,
 8521 CysLeuPheSerTyrArgArgLeuArgAspLeuLeuLeuIleAlaAlaArgThrValGlu
 TGCCTCTTCAGCTACCGCCGCTTGAGAGACTTACTCTTGATTGCAGCGAGGACTGTGGAA
 ACGGAGAAGTCGATGGCGGCGAACTCTCTGAATGAGAACTAACGTCGCTCCTGACACCTT
 8525 mbol1,

FIG. 4N

REPLACEMENT SHEET

8581 IleLeuGlyHisArgGlyTrpGluAlaLeuLysTyrTrpTrpSerLeuLeuGlnTyrTrp
ATTCTGGGGCACAGGGGGTGGGAAGCCCTCAAATATTGGTGGAGTCTCCTGCAGTATTGG
TAAGACCCCGTGTCCTCCACCCCTTCGGGAGTTTATAACCCACCTCAGAGGACGTCATAACC
8629 pst1,

8641 IleGlnGluLeuLysAsnSerAlaValSerTrpLeuAsnAlaThrAlaIleAlaValThr
ATTGAGGAACATAAGAATAGTGCTGTTAGCTGGCTCAACGCCACAGCTATAGCAGTAACCT
TAAGTCCTTGATTTCTTATCACGACAATCGACCGAGTTGCGGTGTCGATATCGTCATTGA

8701 GluGlyThrAspArgValIleGluValAlaGlnArgAlaTyrArgAlaIleLeuHisIle
GAGGGGACAGATAGGGTTATAGAAGTAGCACAAAGAGCTTATAGAGCTATTCTCCACATA
CTCCCTGTCTATCCCAATATCTTCATCGTGTCTTCGAATATCTCGATAAGAGGTTGTAT

8761 HisArgArgIleArgGlnGlyLeuGluArgLeuLeuLeuOC MetGlyGlyLysTrpSer
CATAGAAGAATTAGACAGGGCTTGGAAGGCTTTTGTCTATAAGATGGGTGGCAAGTGGTCA
GTATCTTCTTAATCTGTCCCGAACCTTTCCGAAACGATATTCTACCCACCGTTCCACAGT
8765 mbol1,

8822 LysArgSerMetGlyGlyTrpSerAlaIleArgGluArgMetArgArgAlaGluProArg
AAACGTAGTATGGGTGGATGGTCTGCTATAAGGGAAAGAATGAGACGAGCTGAGCCACGA
TTTGCATCATACCCACCTACCAGACGATATTCCTTTCTTACTCTGCTCGACTCGGTGCT

8882 AlaGluProAlaAlaAspGlyValGlyAlaValSerArgAspLeuGluLysHisGlyAla
GCTGAGCCAGCAGCAGATGGGGTGGGAGCAGTATCTCGAGACCTGGAAAAACATGGAGCA
CGACTCGGTCGTCGTCTACCCACCCCTCGTCATAGAGCTCTGGACCTTTTGTACCTCGT
8883 tthIIII1, 8916 aval xho1,

8942 IleThrSerSerAsnThrAlaAlaThrAsnAlaAspCysAlaTrpLeuGluAlaGlnGlu
ATCACAAGTAGCAATACAGCAGCTACTAATGCTGATTGTGCCTGGCTAGAAGCACAAGAG
TAGTGTTTCATCGTTATGTCGTCGATGATTACGACTAACACGGACCGATCTTCGTGTTCTC

9002 GluGluGluValGlyPheProValArgProGlnValProLeuArgProMetThrTyrLys
GAGGAAGAGGTGGGTTTTCCAGTCAGACCTCAGGTACCTTTAAGACCAATGACTTACAAG
CTCCTTCTCCACCCAAAAGGTCAGTCTGGAGTCCATGGAAATTCTGGTTACTGAATGTTCT
9005 mbol1, 9029 mst11, 9034 kpn1,

9062 AlaAlaLeuAspIleSerHisPheLeuLysGluLysGlyGlyLeuGluGlyLeuIleTrp
GCAGCTTTAGATATTAGCCACTTTTTAAAAGAAAAGGGGGGACTGGAAGGGCTAATTTGG
CGTCGAAATCTATAATCGGTGAAAATTTTCTTTTCCCCCTGACCTTCCCGATTAAACC
9085 aha111,

9122 SerGlnArgArgGlnGluIleLeuAspLeuTrpIleTyrHisThrGlnGlyTyrPhePro
TCCCAAAGAAGACAAGAGATCCTTGATCTGTGGATCTACCACACACAAGGCTACTTCCCT
AGGGTTTCTTCTGTTCTCTAGGAACTAGACACCTAGATGGTGTGTGTTCCGATGAAGGGA
9129 mbol1, 9153 bin1,

9182 AspTrpGlnAsnTyrThrProGlyProGlyIleArgTyrProLeuThrPheGlyTrpCys
GATTGGCAGAATTACACACCAGGGCCAGGGATCAGATATCCACTGACCTTTGGATGGTGC
CTAACCGTCTTAATGTGTGGTCCCGTCCCTAGTCTATAGGTGACTGGAAACCTACCACG
9210 bin1, 9216 ecor5,

FIG. 40

REPLACEMENT SHEET

9242 PheLysLeuValProValGluProGluLysValGluGluAlaAsnGluGlyGluAsnAsn
 TTCAAGCTAGTACCAAGTTGAGCCAGAGAAGGTAGAAGAGGCCAATGAAGGAGAGAACAAAC
 AAGTTCGATCATGGTCAACTCGGTCTCTTCCATCTTCTCCGGTTACTTCTCTCTTGTG
 9275 mbol1,
 9302 SerLeuLeuHisProMetSerLeuHisGlyMetGluAspAlaGluLysGluValLeuVal
 AGCTTGTACACCTATGAGCCTGCATGGGATGGAGGACGCGGAGAAAGAAGTGTAGTG
 TCGAACAAATGTGGGATACTCGGACGTACCCTACCTCCTGCGCCTCTTCTTCAATCAC
 9362 TrpArgPheAspSerLysLeuAlaPheHisHisMetAlaArgGluLeuHisProGluTyr
 TGGAGGTTTGACAGCAAACCTAGCATTTTCATCACATGGCCCGAGAGCTGCATCCGGAGTAC
 ACCTCCAAACTGTCGTTTGATCGTAAAGTAGTGTACCGGGCTCTCGACGTAGGCCTCATG
 9399 aval, 9417 sac1,
 9422 TyrLysAspCysOP
 TACAAAGACTGCTGACATCGAGCTTTCTACAAGGGACTTTCCGCTGGGGACTTTCCAGGG
 ATGTTTCTGACGACTGTAGCTCGAAAGATGTTCCCTGAAAGGCGACCCCTGAAAGGTCCC
 9482 AGGCGTGGCCTGGGCGGGACTGGGGAGTGGCGTCCCTCAGATGCTGCATATAAGCAGCTG
 TCCGCACCGGACCCGCCCTGACCCCTCACCAGAGGGAGTCTACGACGTATATTCGTCGAC
 9536 pvu11,
 9542 CTTTTTGCCTGTACTGGGTCTCTCTGGTTAGACCAGATCTGAGCCTGGGAGCTCTCTGGC
 GAAAAACGGACATGACCCAGAGAGACCAATCTGGTCTAGACTCGGACCTCGAGAGACCG
 9576 bgl11, 9590 sac1,
 9602 TAACTAGGGAACCCACTGCTTAAGCCTCAATAAAGCTTGCCTTGAGTGCTTCAAGTAGTG
 ATTGATCCCTTGGGTGACGAATTCGGAGTTATTTTGAACGGAACCTACGAAGTTCATCAC
 9620 afl11, 9634 hind11,
 9662 TGTGCCCGTCTGTTGTGTGACTCTGGTAACTAGAGATCCCTCAGACCCTTTTAGTCAGTG
 ACACGGGCAGACAACACACTGAGACCATTGATCTCTAGGGAGTCTGGGAAAATCAGTCAC
 9722 TGGAAAAATCTCTAGCAG
 ACCTTTTATAGAGATCGTC

FIG. 4P

REPLACEMENT SHEET

-453 ^{U3→} CTGGAAGGGCTAATTTGGTCCCAAAGAAGACAAGAGATCCTTGATCTGTGGATCTACCAC
 ACACAAGGCTACTTCCCTGATTGGCAGAATTACACACCAGGGCCAGGGATCAGATATCCA
 -333 CTGACCTTTGGATGGTGTCTCAAGCTAGTACCAGTTGAGCCAGAGAAGGTAGAAGAGGCC L
 AATGAAGGAGAGAACAACAGCTTGTACACCCTATGAGCCTGCATGGGATGGAGGACGCG
 -214 GAGAAAGAAGTGTTAGTGTGGAGGTTTGACAGCAAACTAGCATTTTCATCACATGGCCCGA
 GAGCTGCATCCGGAGTACTACAAAGACTGCTGACATCGAGCTTTCTACAAGGGACTTTCCG T
 -93 CTGGGGACTTTCCAGGGAGGCGTGGCCTGGGCGGGACTGGGGAGTGGCGTCCCTCAGATG
 CTGCATATAAGCAGCTGCTTTTTGCCTGTACTG ^{←U3 R→} GGTCTCTCTGGTTAGACCAGATCTGAG R
 28 CCTGGGAGCTCTCTGGCTAACTAGGGAACCCACTGCTTAAGCCTCAATAAAGCTTGCCTT
 GAGTGCCTCA ^{←R U5→} AGTAGTGTGTGCCCCTCTGTTGTGTGACTCTGGTAACTAGAGATCCCTCA
 148 GACCCTTTTAGTCAGTGTGGAAAAATCTCTAGCAG ^{←U5} TGGCGCCCGAACAGGGACGCGAAA
 GCGAAAGTAGAACCAGAGGAGCTCTCTCGACGCAGGACTCGGCTTGCTGAAGCGCGCACAG
 268 CAAGAGGCGAGGGGCGGCGACTGGTGAGTACGCCAATTTTTGACTAGCGGAGGCTAGAAG
 MetGlyAlaArgAlaSerValLeuSerGlyGlyGluLeuAspLysTrpGlu 17
 GAGAGAGAGATGGGTGCGAGAGCGTCGGTATTAAGCGGGGGAGAATTAGATAAATGGGAA
 388 LysIleArgLeuArgProGlyGlyLysLysLysTyrLysLeuLysHisIleValTrpAla
 AAAATTTCGGTTAAGGCCAGGGGAAAGAAAAAATATAAGTTAAACATATAGTATGGGCA
 SerArgGluLeuGluArgPheAlaValAsnProGlyLeuLeuGluThrSerGluGlyCys 57
 AGCAGGGAGCTAGAACGATTTCGAGTCAATCCTGGCCTGTTAGAAACATCAGAAGGCTGC
 508 ArgGlnIleLeuGlyGlnLeuGlnProSerLeuGlnThrGlySerGluGluLeuArgSer
 AGACAAATATTGGGACAGCTACAGCCATCCCTTCAGACAGGATCAGAAGAACTTAGATCA
 LeuTyrAsnThrValAlaThrLeuTyrCysValHisGlnArgIleAspValLysAspThr 97
 TTATATAATACAGTAGCAACCCTCTATTGTGTACATCAAAGGATAGATGTAAAAGACACC
 628 LysGluAlaLeuGluLysIleGluGluGluGlnAsnLysSerLysLysLysAlaGlnGln
 AAGGAAGCTTTAGAGAAGATAGAGGAAGAGCAAAACAAAAGTAAGAAAAAGGCACAGCAA
 AlaAlaAlaAlaAlaGlyThrGlyAsnSerSerGlnValSerGlnAsnTyrProIleVal 137
 GCAGCAGCTGCAGCTGGCACAGGAAACAGCAGCCAGGTCAGCCAAAATTACCCTATAGTG
 748 GlnAsnLeuGlnGlyGlnMetValHisGlnAlaIleSerProArgThrLeuAsnAlaTrp
 CAGAACCTACAGGGGCAAATGGTACATCAGGCCATATCACCTAGAAGCTTTAAATGCATGG
 ValLysValValGluGluLysAlaPheSerProGluValIleProMetPheSerAlaLeu 177
 GTAAAAGTAGTAGAAGAAAGGCTTTTCAGCCAGAAAGTAATACCCATGTTTTTCAGCATT
 868 SerGluGlyAlaThrProGlnAspLeuAsnThrMetLeuAsnThrValGlyGlyHisGln
 TCAGAAAGGAGCCACCCACAAAGATTTAAACACCATGCTAAACACAGTGGGGGGACATCAA

FIG. 5A

REPLACEMENT SHEET

	AlaAlaMetGlnMetLeuLysGluThrIleAsnGluGluAlaAlaGluTrpAspArgVal	217	G
	GCAGCCATGCAAATGTTAAAAGAGACTATCAATGAGGAAGCTGCAGAATGGGATAGAGTG		
988	HisProValHisAlaGlyProIleAlaProGlyGlnMetArgGluProArgGlySerAsp		A
	CATCCAGTGCATGCAGGGCTATTGCACCAGGCCAAATGAGAGAACCAAGGGGAAGTGAC		
	IleAlaGlyThrThrSerThrLeuGlnGluGlnIleGlyTrpMetThrAsnAsnProPro	257	
	ATAGCAGGAACCTACTAGTACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCT		G
1108	IleProValGlyGluIleTyrLysArgTrpIleIleLeuGlyLeuAsnLysIleValArg		
	ATCCAGTAGGAGAAATCTATAAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGA		
	MetTyrSerProThrSerIleLeuAspIleArgGlnGlyProLysGluProPheArgAsp	297	
	ATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTAGAGAT		
1228	TyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnAspValLysAsn		
	TATGTAGACCGGTTCTATAAACTCTAAGAGCCGAACAAGCTTCACAGGATGTAAAAAT		
	TrpMetThrGluThrLeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLys	337	
	TGGATGACAGAAACCTTGTTGGTCCAAAATGCAACCCAGATTGTAAGACTATTTTAAA		
1348	AlaLeuGlyProAlaAlaThrLeuGluGluMetMetThrAlaCysGlnGlyValGlyGly		
	GCATTGGGACCAGCAGCTACACTAGAAGAAATGATGACAGCATGTCAGGGAGTGGGGGA		
	ProGlyHisLysAlaArgValLeuAlaGluAlaMetSerGlnValThrAsnProAlaAsn	377	
	CCCGGCCATAAAGCAAGAGTTTTGGCTGAAGCCATGAGCCAAGTAACAAATCCAGCTAAC		
1468	IleMetMetGlnArgGlyAsnPheArgAsnGlnArgLysThrValLysCysPheAsnCys		
	ATAATGATGCAGAGAGGCAATTTTAGGAACCAAAGAAAGACTGTTAAGTGTTCATTGT		
	GlyLysGluGlyHisIleAlaLysAsnCysArgAlaProArgLysLysGlyCysTrpArg	417	
	GGCAAAGAAAGGGCACATAGCCAAAATTGCAGGGCCCCTAGGAAAAAGGGCTGTTGGAGA		
	CysGlyArgGluGlyHisGlnMetLysAspCysThrGluArgGlnAlaAsnPheLeuGly		
1588	TGTGGAAGGGAAGGACACCAAATGAAAGATTGCACTGAGAGACAGGCTAATTTTTTAGGG		
	LysIleTrpProSerTyrLysGlyArgProGlyAsnPheLeuGlnSerArgProGluPro	457	
	IuAspLeuAlaPheLeuGlnGlyLysAlaArgGluPheSerSerGluGlnThrArgAla	23	
	AAGATCTGGCCTTCCTACAAGGGAAGGCCAGGGAATTTTCTTCAGAGCAGACCAGAGCCA		
	ThrAlaProProGluGluSerPheArgPheGlyGluGluLysThrThrProSerGlnLys		
1708	AsnSerProThrArgArgGluLeuGlnValTrpGlyGlyGluAsnAsnSerLeuSerGluA		P
	ACAGCCCCACCAGAAGAGAGCTTCAGGTTTGGGGAGGAGAAAACAACTCCCTCTCAGAA		
	GlnGluProIleAspLysGluLeuTyrProLeuThrSerLeuArgSerLeuPheGlyAsn	497	
	IaGlyAlaAspArgGlnGlyThrValSerPheAsnPheProGlnIleThrLeuTrpGln	63	
	CAGGAGCCGATAGACAAGGAAGTATCCTTTAACTTCCCTCAGATCACTCTTTGGCAAC		O
	AspProSerSerGlnOC		
1828	ArgProLeuValThrIleArgIleGlyGlyGlnLeuLysGluAlaLeuLeuAspThrGlyA		
	GACCCCTCGTCACAATAAGGATAGGGGGGCAACTAAAGGAAGCTCTATTAGATACAGGAG		L
	IaAspAspThrValLeuGluGluMetAsnLeuProGlyLysTrpLysProLysMetIle	103	
	CAGATGATACAGTATTAGAAGAAATGAATTTGCCAGGAAAATGGAAACCAAAATGATAG		
1948	GlyGlyIleGlyGlyPheIleLysValArgGlnTyrAspGlnIleProValGluIleCysG		
	GGGGAATTGGAGGTTTTATCAAAGTAAGACAGTACGATCAGATACCTGTAGAAATCTGTG		

FIG. 5B

REPLACEMENT SHEET

lyHisLysAlaIleGlyThrValLeuValGlyProThrProValAsnIleIleGlyArg 143
 GACATAAAGCTATAGGTACAGTATTAGTAGGACCTACACCTGTCAACATAATTGGAAGAA
 AsnLeuLeuThrGlnIleGlyCysThrLeuAsnPheProIleSerProIleGluThrValP
 2068 ATCTGTTGACTCAGATTGGTTGTACTTTAAATTTCCCATTAGTCCTATTGAACTGTAC
 roValLysLeuLysProGlyMetAspGlyProLysValLysGlnTrpProLeuThrGlu 183
 CAGTAAATTAAGCCAGGAATGGATGGCCAAAAGTTAAGCAATGGCCATTGACAGAAG
 GluLysIleLysAlaLeuValGluIleCysThrGluMetGluLysGluGlyLysIleSerL
 2188 AAAAAATAAAGCATTAGTAGAGATATGTACAGAAATGGAAAAGGAAGGGAAAATTTCAA
 ysIleGlyProGluAsnProTyrAsnThrProValPheAlaIleLysLysLysAspSer 223
 AAATTGGCCTGAAAATCCATACAATACTCCAGTATTTGCTATAAAGAAAAAGACAGTA
 ThrLysTrpArgLysLeuValAspPheArgGluLeuAsnLysArgThrGlnAspPheTrpG
 2308 CTAAATGGAGAAAACCTAGTAGATTTCAGAGAACTTAATAAAGAACTCAAGACTTCTGGG
 luValGlnLeuGlyIleProHisProAlaGlyLeuLysLysLysLysSerValThrVal 263
 AAGTTCAGTTAGGAATACCACACCCCGAGGGTTAAAAAGAAAAAATCAGTAACAGTAT
 LeuAspValGlyAspAlaTyrPheSerValProLeuAspLysAspPheArgLysTyrThrA
 2428 TGGATGTGGGTGATGCATACTTTTCAGTTCCCTTAGATAAAGACTTTAGAAAGTATACTG
 laPheThrIleProSerIleAsnAsnGluThrProGlyIleArgTyrGlnTyrAsnVal 303
 CATTTACCATACCTAGTATAACAATGAGACACCAGGGATTAGATATCAGTACAATGTGC
 LeuProGlnGlyTrpLysGlySerProAlaIlePheGlnSerSerMetThrLysIleLeuG
 2548 TGCCACAGGGATGGAAAGGATCACCAGCAATATTCCAAAGTAGCATGACAAAAATCTTAG
 luProPheArgLysGlnAsnProAspIleValIleTyrGlnTyrMetAspAspLeuTyr 343
 AGCCTTTTAGAAAACAGAATCCAGACATAGTTATCTATCAATACATGGATGATTTGTATG
 ValGlySerAspLeuGluIleGlyGlnHisArgThrLysIleGluGluLeuArgGlnHisL
 2668 TAGGATCTGACTTAGAAATAGGGCAGCATAGAACAAAAATAGAGGAACCTGAGACAGCATC
 euLeuArgTrpGlyPheThrThrProAspLysLysHisGlnLysGluProProPheLeu 383
 TGTGAGGTGGGGATTTACCACACCAGACAAAAACATCAGAAAGAACCTCCATTCTTT
 TrpMetGlyTyrGluLeuHisProAspLysTrpThrValGlnProIleMetLeuProGluL
 2788 GGATGGGTTATGAACTCCATCCTGATAAATGGACAGTACAGCCTATAATGCTGCCAGAAA
 ysAspSerTrpThrValAsnAspIleGlnLysLeuValGlyLysLeuAsnTrpAlaSer 423
 AAGACAGCTGGACTGTCAATGACATACAGAAGTTAGTGGGAAAATTGAATTGGGCAAGTC
 GlnIleTyrAlaGlyIleLysValLysGlnLeuCysLysLeuLeuArgGlyThrLysAlaL
 2908 AGATTTATGCAGGGATTAAAGTAAAGCAGTTATGTAACTCCTTAGAGGAACCAAAGCAC
 euThrGluValIleProLeuThrGluGluAlaGluLeuGluLeuAlaGluAsnArgGlu 463 P
 TAACAGAAGTAATACCACTAACAGAAGAAGCAGAGCTAGAACTGGCAGAAAAACAGGGAGA
 IletLeuLysGluProValHisGluValTyrTyrAspProSerLysAspLeuValAlaGluI
 3028 TTCTAAAAGAACCAGTACATGAAGTATATTATGACCCATCAAAGACTTAGTAGCAGAAA
 leGlnLysGlnGlyGlnGlyGlnTrpThrTyrGlnIleTyrGlnGluProPheLysAsn 503 O
 TACAGAAGCAGGGGCAAGGCCAATGGACATATCAAATTTATCAAGAGCCATTTAAAAATC
 LeuLysThrGlyLysTyrAlaArgMetArgGlyAlaHisThrAsnAspValLysGlnLeuT
 3148 TGAAAACAGGAAAGTATGCAAGGATGAGGGGTGCCACACTAATGATGTAAAACAGTTAA
 hrGluAlaValGlnLysValSerThrGluSerIleValIleTrpGlyLysIleProLys 543 L
 CAGAGGCAGTGCAAAAAGTATCCACAGAAAGCATAGTAATATGGGGAAAGATTCTAAAT

FIG. 5C

REPLACEMENT SHEET

PheLysLeuProIleGlnLysGluThrTrpGluAlaTrpTrpMetGluTyrTrpGlnAlaT
 3268 TTAAACTACCCATACAAAAGGAAACATGGGAAGCATGGTGGATGGAGTATTGGCAAGCTA
 hrTrpIleProGluTrpGluPheValAsnThrProProLeuValLysLeuTrpTyrGln 583
 CCTGGATTCTGAGTGGGAGTTTGTCAATACCCCTCCCTTAGTGAAATTATGGTACCACT
 LeuGluLysGluProIleValGlyAlaGluThrPheTyrValAspGlyAlaAlaAsnArgG
 3388 TAGAGAAAGAACCCATAGTAGGAGCAGAACTTTCTATGTAGATGGGGCAGCTAATAGGG
 luThrLysLeuGlyLysAlaGlyTyrValThrAspArgGlyArgGlnLysValValSer 623
 AGACTAAATTAGGAAAAGCAGGATATGTTACTGACAGAGGAAGACAAAAGTTGTCTCCA
 IleAlaAspThrThrAsnGlnLysThrGluLeuGlnAlaIleHisLeuAlaLeuGlnAspS
 3508 TAGCTGACACAACAAATCAGAAAGACTGAATTACAAGCAATTCATCTAGCTTTGCAGGATT
 erGlyLeuGluValAsnIleValThrAspSerGlnTyrAlaLeuGlyIleIleGlnAla 663
 CGGGATTAGAAGTAAACATAGTAACAGACTCACAAATATGCATTAGGAATCATTCAAGCAC
 GlnProAspLysSerGluSerGluLeuValSerGlnIleIleGluGlnLeuIleLysLysG
 3628 AACAGATAAGAGTGAATCAGAGTTAGTCAGTCAAATAATAGAGCAGTTAATAAAAAAGG
 luLysValTyrLeuAlaTrpValProAlaHisLysGlyIleGlyGlyAsnGluGlnVal 703
 AAAAGGTCTACCTGGCATGGGTACCAGCACACAAAGGAATTGGAGGAAATGAACAAGTAG
 AspLysLeuValSerAlaGlyIleArgLysValLeuPheLeuAsnGlyIleAspLysAlaG
 3748 ATAAATTAGTCAGTGCTGGAATCAGGAAAGTACTATTTTTGAATGGAATAGATAAGGCC
 lngluGluHisGluLysTyrHisSerAsnTrpArgAlaMetAlaSerAspPheAsnLeu 743
 AAGAAGAACATGAGAAATATCACAGTAATTGGAGAGCAATGGCTAGTGATTTTAACCTGC
 ProProValValAlaLysGluIleValAlaSerCysAspLysCysGlnLeuLysGlyGluA
 3868 CACCTGTAGTAGCAAAAGAAATAGTAGCCAGCTGTGATAAATGTCAGCTAAAAGGAGAAAG
 laMetHisGlyGlnValAspCysSerProGlyIleTrpGlnLeuAspCysThrHisLeu 783
 CCATGCATGGACAAGTAGACTGTAGTCCAGGAATATGGCAACTAGATTGTACACATCTAG
 GluGlyLysIleIleLeuValAlaValHisValAlaSerGlyTyrIleGluAlaGluValI
 3988 AAGGAAAAATTATCCTGGTAGCAGTTCATGTAGCCAGTGGATATATAGAAGCAGAAAGTTA
 leProAlaGluThrGlyGlnGluThrAlaTyrPheLeuLeuLysLeuAlaGlyArgTrp 823
 TTCCAGCAGAGACAGGGCAGGAAACAGCATATTTTCTCTTAAAATTAGCAGGAAGATGGC
 ProValLysThrIleHisThrAspAsnGlySerAsnPheThrSerThrThrValLysAlaA
 4108 CAGTAAAAACAATACATACAGACAATGGCAGCAATTTACCAAGTACTACGGTTAAGGCCG
 laCysTrpTrpAlaGlyIleLysGlnGluPheGlyIleProTyrAsnProGlnSerGln 863
 CCTGTTGGTGGGCAGGGATCAAGCAGGAATTTGGCATTCCCTACAATCCCCAAAGTCAAG
 GlyValValGluSerMetAsnAsnGluLeuLysLysIleIleGlyGlnValArgAspGlnA
 4228 GAGTAGTAGAATCTATGAATAATGAATTAAAGAAAATTATAGGACAGGTAAGAGATCAGG
 laGluHisLeuLysThrAlaValGlnMetAlaValPheIleHisAsnPheLysArgLys 903
 CTGAACACCTTAAGACAGCAGTACAAATGGCAGTATTCATCCACAATTTTAAAAGAAAAAG
 GlyGlyIleGlyGlyTyrSerAlaGlyGluArgIleValAspIleIleAlaThrAspIleG
 4348 GGGGGATTGGGGGATACAGTGCAGGGGAAAGAATAGTAGACATAATAGCAACAGACATAC
 lngThrLysGluLeuGlnLysGlnIleThrLysIleGlnAsnPheArgValTyrTyrArg 943
 AAATAAAGAACTACAAAAGCAAATTACAAAATTCAAATTTTCGGGTTTATTACAGGG

FIG. 5D

REPLACEMENT SHEET

AspAsnLysAspProLeuTrpLysGlyProAlaLysLeuLeuTrpLysGlyGluGlyAlaV
 4468 ACAACAAAGATCCCCTTTGGAAAGGACCAGCAAAGCTTCTCTGGAAAGGTGAAGGGGCAG
 alValIleGlnAspAsnSerAspIleLysValValProArgArgLysAlaLysIleIle 983
 TAGTAATACAAGATAATAGTGACATAAAAGTAGTGCCAAGAAGAAAAGCAAAAATCATT
 ArgAspTyrGlyLysGlnMetAlaGlyAspAspCysValAlaSerArgGlnAspGluAspA
 4588 GGGATTATGGAAAACAGATGGCAGGTGATGATTGTGTGGCAAGTAGACAGGATGAGGATT
 M
 AGAACATGGAAAAGTTTAGTAAACACCATATGTATATTTCAAAGAAAGCTAAAGGATGG
 4708 TTTTATAGACATCACTATGAAAGTACTCATCCAAGAGTAAGTTCAGAAGTACACATCCCC
 CTAGGGGATGCTAAATTGGTAATAACAACATATTGGGGTCTGCATACAGGAGAAAGAGAA
 4828 TGGCATTGTTGGGCCAGGGAGTCGCCATAGAATGGAGGAAAAAGAAATATAGCACACAAGTA
 GACCCTGGCCTAGCAGACCAACTAATTCATCTGCATTATTTTGATTGTTTTTCAGAATCT
 4948 GCTATAAAAAATGCCATATTAGGATATAGAGTTAGTCCTAGGTGTGAATATCAAGCAGGA
 CATAACAAGGTAGGATCTCTACAATACTTGGCACTAGCAGCATTAAACACCAAAAAAG
 5068 ACAAAGCCACCTTTGCCTAGTGTTAAGAACTGACAGAGGATAGATGGAACAAGCCCCAG
 AAGACCAAGGGCCACAGAGGGAGCCATACAATGAATGGACACTAGAGCTTTTAGAGGAGC
 5188 TTAAGAGAGAAGCTGTTAGACATTTTCTAGGCCATGGCTCCATAGCTTAGGACAATATA
 TCTATGAACTTATGGGGATACTTGGGCAGGAGTGGAAGCCATAATAAGAATTCTGCAAC
 5308 AACTGCTGTTTATTCATTTTCTAGAAATTGGGTGTCAACATAGCAGAATAGGCATTATTCAAC
 AGAGGAGAGCAAGAAGAAATGGAGCCAGTAGATCCTAATCTAGAGCCCTGGAAGCATCCA
 5428 GGAAGTCAGCCTAGGACTGCTTGTAACAATTGCTATTGTAAAAAGTGTTGCTTTTATTGC
 TACGCGTGTTTACAAGAAAAGGCTTAGGCATCTCCTATGGCAGGAAGAAGCGGAGACAG
 5548 CGACGAAGAGCTCCTCAGGACAGTCAGACTCATCAAGCTTCTCTATCAAAGCAGTAAGTA
 GTAAATGTAATGCAATCTTTACAATATTAGCAATAGTATCATTAGTAGTAGTAGCAATA
 5668 ATAGCAATAGTTGTGTGGACCATAGTACTCATAGAATATAGGAAAATATTAAGACAAAGA
 AAATAGACAGATTAATTGATAGAATAAGAGAAAAAGCAGAAGACAGTGGCAATGAAAGTG MetLysVal 3
 LysGlyThrArgArgAsnTyrGlnHisLeuTrpArgTrpGlyThrLeuLeuLeuGlyMet
 5788 AAGGGGACCAGGAGGAATTATCAGCACTTGTGGAGATGGGGCACCTTGCTCCTTGGGATG
 LeuMetIleCysSerAlaThrGluLysLeuTrpValThrValTyrTyrGlyValProVal 43
 TTGATGATCTGTAGTGCTACAGAAAAATTGTGGGTACAGTTTATTATGGAGTACCTGTG
 TrpLysGluAlaThrThrThrLeuPheCysAlaSerAspAlaArgAlaTyrAspThrGlu
 5908 TGGAAAGAAGCAACTACCACTCTATTTTGTGCATCAGATGCTAGAGCATATGATACAGAG
 ValHisAsnValTrpAlaThrHisAlaCysValProThrAspProAsnProGlnGluVal 83
 GTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAACCCACAAGAAGTA

FIG. 5E

REPLACEMENT SHEET

6028 ValLeuGlyAsnValThrGluAsnPheAsnMetTrpLysAsnAsnMetValGluGlnMet
 GTATTGGGAAATGTGACAGAAAATTTTAAACATGTGGAAAAATAACATGGTAGAACAGATG
 GlnGluAspIleIleSerLeuTrpAspGlnSerLeuLysProCysValLysLeuThrPro 123
 CAGGAGGATATAATCAGTTTATGGGATCAAAGCCTAAAGCCATGTGTAAAATTAACCCCA
 6148 LeuCysValThrLeuAsnCysThrAspLeuGlyLysAlaThrAsnThrAsnSerSerAsn
 CTCTGTGTTACTTTAAATTGCACTGATTTGGGGAAGGCTACTAATACCAATAGTAGTAAT
 TrpLysGluGluIleLysGlyGluIleLysAsnCysSerPheAsnIleThrThrSerIle 163
 TGGAAAGAAGAAATAAAAGGAGAAATAAAAACTGCTCTTCAATATCACCACAAGCATA
 6268 ArgAspLysIleGlnLysGluAsnAlaLeuPheArgAsnLeuAspValValProIleAsp
 AGAGATAAGATTGAGAAAGAAAATGCACCTTTTTTCGTAACTTGATGTAGTACCAATAGAT
 AsnAlaSerThrThrThrAsnTyrThrAsnTyrArgLeuIleHisCysAsnArgSerVal 203
 AATGCTAGTACTACTACCAACTATACCAACTATAGGTTGATACATTGTAACAGATCAGTC
 6388 IleThrGlnAlaCysProLysValSerPheGluProIleProIleHisTyrCysThrPro
 ATTACACAGGCCTGTCCAAAGGTATCATTTGAGCCAATTCCCATACATTATTGTACCCCG
 AlaGlyPheAlaIleLeuLysCysAsnAsnLysThrPheAsnGlyLysGlyProCysThr 243 E
 GCTGGTTTTGCGATTCTAAAGTGTAATAATAAACGTTCAATGGAAAAGGACCATGTACA
 6508 AsnValSerThrValGlnCysThrHisGlyIleArgProIleValSerThrGlnLeuLeu
 AATGTCAGCACAGTACAATGTACACATGGAATTAGGCCAATAGTGTCAACTCAACTGCTG
 LeuAsnGlySerLeuAlaGluGluGluValValIleArgSerAspAsnPheThrAsnAsn 283 N
 TTAAATGGCAGTCTAGCAGAAGAAGAGGTAGTAATTAGATCTGACAATTTACGAACAAT
 6628 AlaLysThrIleIleValGlnLeuAsnGluSerValAlaIleAsnCysThrArgProAsn
 GCTAAAACCATAAATAGTACAGCTGAATGAATCTGTAGCAATTAAGTGTACAAGACCCAAC
 AsnAsnThrArgLysSerIleTyrIleGlyProGlyArgAlaPheHisThrThrGlyArg 323 V
 AACAATACAAGAAAAAGTATCTATATAGGACCAGGGAGAGCATTTTCATACAACAGGAAGA
 6748 IleIleGlyAspIleArgLysAlaHisCysAsnIleSerArgAlaGlnTrpAsnAsnThr
 ATAATAGGAGATATAAGAAAAGCACATTGTAACATTAGTAGAGCACAATGGAATAACACT
 LeuGluGlnIleValLysLysLeuArgGluGlnPheGlyAsnAsnLysThrIleValPhe 363
 TTAGAACAGATAGTTAAAAAATTAAGAGAACAGTTTGGGAATAATAAAACAATAGTCTTT
 6868 AsnGlnSerSerGlyGlyAspProGluIleValMetHisSerPheAsnCysArgGlyGlu
 AATCAATCCTCAGGAGGGGACCCAGAAATTGTAATGCACAGTTTTAATTGTAGAGGGGAA
 PhePheTyrCysAsnThrThrGlnLeuPheAsnAsnThrTrpArgLeuAsnHisThrGlu 403
 TTTTCTACTGTAATACAACACAACCTGTTAATAATACATGGAGGTTAAATCACACTGAA
 6988 GlyThrLysGlyAsnAspThrIleIleLeuProCysArgIleLysGlnIleIleAsnMet
 GGAATAAAGGAAATGACACAATCATACTCCCATGTAGAATAAAACAAATTATAACATG
 TrpGlnGluValGlyLysAlaMetTyrAlaProProIleGlyGlyGlnIleSerCysSer 443
 TGGCAGGAAGTAGGAAAAGCAATGTATGCCCTCCCATGGAGGACAAATTAGTTGTTCA
 7108 SerAsnIleThrGlyLeuLeuLeuThrArgAspGlyGlyThrAsnValThrAsnAspThr
 TCAAATATTACAGGGCTGCTATTAACAAGAGATGGTGGTACAAATGTAACATGACACC
 GluValPheArgProGlyGlyGlyAspMetArgAspAsnTrpArgSerGluLeuTyrLys 483
 GAGGTCTTCAGACCTGGAGGAGGAGATATGAGGGACAATTGGAGAAGTGAATTATATAAA

FIG. 5F

REPLACEMENT SHEET

TyrLysValIleLysIleGluProLeuGlyIleAlaProThrLysAlaLysArgArgVal
 7228 TATAAAGTAATAAAAAATTGAACCATTAGGAATAGCACCCACCAAGGCAAAGAGAAGAGTG
 ValGlnArgGluLysArgAlaValGlyIleValGlyAlaMetPheLeuGlyPheLeuGly 523
 GTGCAGAGAGAAAAAGAGCAGTGGGAATAGTAGGAGCTATGTTCTTGGGTTCTTGGGA
 AlaAlaGlySerThrMetGlyAlaValSerLeuThrLeuThrValGlnAlaArgGlnLeu
 7348 GCAGCAGGAAGCACTATGGGCGCAGTGTCAATTGACGCTGACGGTACAGGCCAGACAATTA
 LeuSerGlyIleValGlnGlnGlnAsnAsnLeuLeuArgAlaIleGluAlaGlnGlnHis 563
 TTGTCTGGTATAGTGCAACAGCAGAACAAATTTGCTGAGGGCTATTGAGGCGCAACAACAT
 LeuLeuGlnLeuThrValTrpGlyIleLysGlnLeuGlnAlaArgValLeuAlaValGlu
 7468 CTGTTGCAACTCACAGTCTGGGGCATCAAGCAGCTCCAGGCAAGAGTCTTGCTGTGGAA
 ArgTyrLeuArgAspGlnGlnLeuLeuGlyIleTrpGlyCysSerGlyLysLeuIleCys 603
 AGATACCTAAGGGATCAACAGCTCCTAGGGATTTGGGGTTGCTCTGGAAAACCTCATTGCT
 ThrThrAlaValProTrpAsnAlaSerTrpSerAsnLysSerLeuGluAspIleTrpAsp
 7588 ACCACTGCTGTGCCTTGGGAATGCTAGTTGGAGTAATAAATCTCTGGAAGACATTTGGGAT
 AsnMetThrTrpMetGlnTrpGluArgGluIleAspAsnTyrThrAsnThrIleTyrThr 643
 AACATGACCTGGATGCAGTGGGAAAGAGAAATTGACAATTACACAAACACAATATACACC
 LeuLeuGluGluSerGlnAsnGlnGlnGluLysAsnGluGlnGluLeuLeuGluLeuAsp
 7708 TTACTTGAAGAATCGCAGAACCAACAAGAAAAGAATGAACAAGAATTATTAGAATTGGAT
 LysTrpAlaSerLeuTrpAsnTrpPheSerIleThrAsnTrpLeuTrpTyrIleLysIle 683
 AAGTGGGCAAGTTTGTGGAATTGGTTTAGCATAACTGGCTGTGGTATATAAAGATA
 PheIleMetIleValGlyGlyLeuValGlyLeuArgIleValPheAlaValLeuSerIle E
 7828 TTCATAATGATAGTAGGAGGCTTGGTAGGTTTAAAGAATAGTTTTTGTCTGTGCTTTCTATA
 ValAsnArgValArgGlnGlyTyrSerProLeuSerPheGlnThrArgLeuProValPro 723
 GTGAATAGAGTTAGGCAGGGATACTCACCATTGTCAATTCAGACCCGCCTCCAGTCCCG N
 ArgGlyProAspArgProAspGlyIleGluGluGluGlyGlyGluArgAspArgAspArg
 7948 AGGGGACCCGACAGGCCCGACGGAATCGAAGAAGAAGGTGGAGAGAGAGACAGAGACAGA
 SerValArgLeuValAspGlyPheLeuAlaLeuIleTrpGluAspLeuArgSerLeuCys 763 V
 TCCGTTGATTAGTGGATGGATTCTTAGCACTTATCTGGGAAGATCTGCGGAGCCTGTGC
 LeuPheSerTyrArgArgLeuArgAspLeuLeuLeuIleAlaAlaArgThrValGluIle
 8068 CTCTTCAGCTACCGCCGCTTGAGAGACTTACTCTTGATTGCAGCGAGGACTGTGGAAATT
 LeuGlyHisArgGlyTrpGluAlaLeuLysTyrTrpTrpSerLeuLeuGlnTyrTrpIle 803
 CTGGGGCACAGGGGGTGGGAAGCCCTCAAATATTGGTGGAGTCTCCTGCAGTATTGGATT
 GlnGluLeuLysAsnSerAlaValSerTrpLeuAsnAlaThrAlaIleAlaValThrGlu
 8188 CAGGAACATAAAGAATAGTGCTGTTAGCTGGCTCAACGCCACAGCTATAGCAGTAACTGAG
 GlyThrAspArgValIleGluValAlaGlnArgAlaTyrArgAlaIleLeuHisIleHis 843
 GGGACAGATAGGGTTATAGAAGTAGCACAAAGAGCTTATAGAGCTATTCTCCACATACAT
 ArgArgIleArgGlnGlyLeuGluArgLeuLeuLeuOC
 8308 AGAAGAATTAGACAGGGCTTGGAAAGGCTTTTGTCTATAAGATGGGTGGCAAGTGGTCAAA
 ACGTAGTATGGGTGGATGGTCTGCTATAAGGGAAAGAATGAGACGAGCTGAGCCACGAGC

FIG. 5G

REPLACEMENT SHEET

8428 TGAGCCAGCAGCAGATGGGGTGGGAGCAGTATCTCGAGACCTGGAAAAACATGGAGCAAT
 CACAAGTAGCAATACAGCAGCTACTAATGCTGATTGTGCCTGGCTAGAAGCACAAGAGGA
 8548 GGAAGAGGTGGGTTTTCCAGTCAGACCTCAGGTACCTTTAAGACCAATGACTTACAAGGC
 AGCTTTAGATATTAGCCACTTTTTTAAAAGAAAAGGGGGGA ^{U3 →} CTGGAAGGGCTAATTTGGT
 8667 CCCAAAGAAGACAAGAGATCCTTGATCTGTGGATCTACCACACACAAGGCTACTTCCCTG
 ATTGGCAGAATTACACACCAGGGCCAGGGATCAGATATCCACTGACCTTTGGATGGTGCT
 8787 TCAAGCTAGTACCAGTTGAGCCAGAGAAGGTAGAAGAGGCCAATGAAGGAGAGAACAACA
 GCTTGTTACACCCTATGAGCCTGCATGGGATGGAGGACGCGGAGAAAGAAGTGTTAGTGT
 8907 GGAGGTTTGACAGCAAAGTAGCATTTTCATCACATGGCCCAGAGCTGCATCCGGAGTACT
 ACAAAGACTGCTGACATCGAGCTTTCTACAAGGGACTTTCCGCTGGGGACTTTCCAGGGA
 9027 GGCCTGGCCTGGGCGGGACTGGGGAGTGGCGTCCCTCAGATGCTGCATATAAGCAGCTGC
 TTTTGCCTGTACTG ^{← U3 R →} GGTCTCTCTGGTTAGACCAGATCTGAGCCTGGGAGCTCTCTGGC
 9146 TAACTAGGGAACCCACTGCTTAAGCCTCAATAAAGCTTGCCTTGAGTGCTTCA ^{← R U5 →} AGTAGT
 GTGTGCCCGTCTGTTGTGTGACTCTGGTAACTAGAGATCCCTCAGACCCTTTTAGTCAGT
 9265 GTGGAAAAATCTCTAGCAG ^{← U5}

L
T
R

FIG. 5H

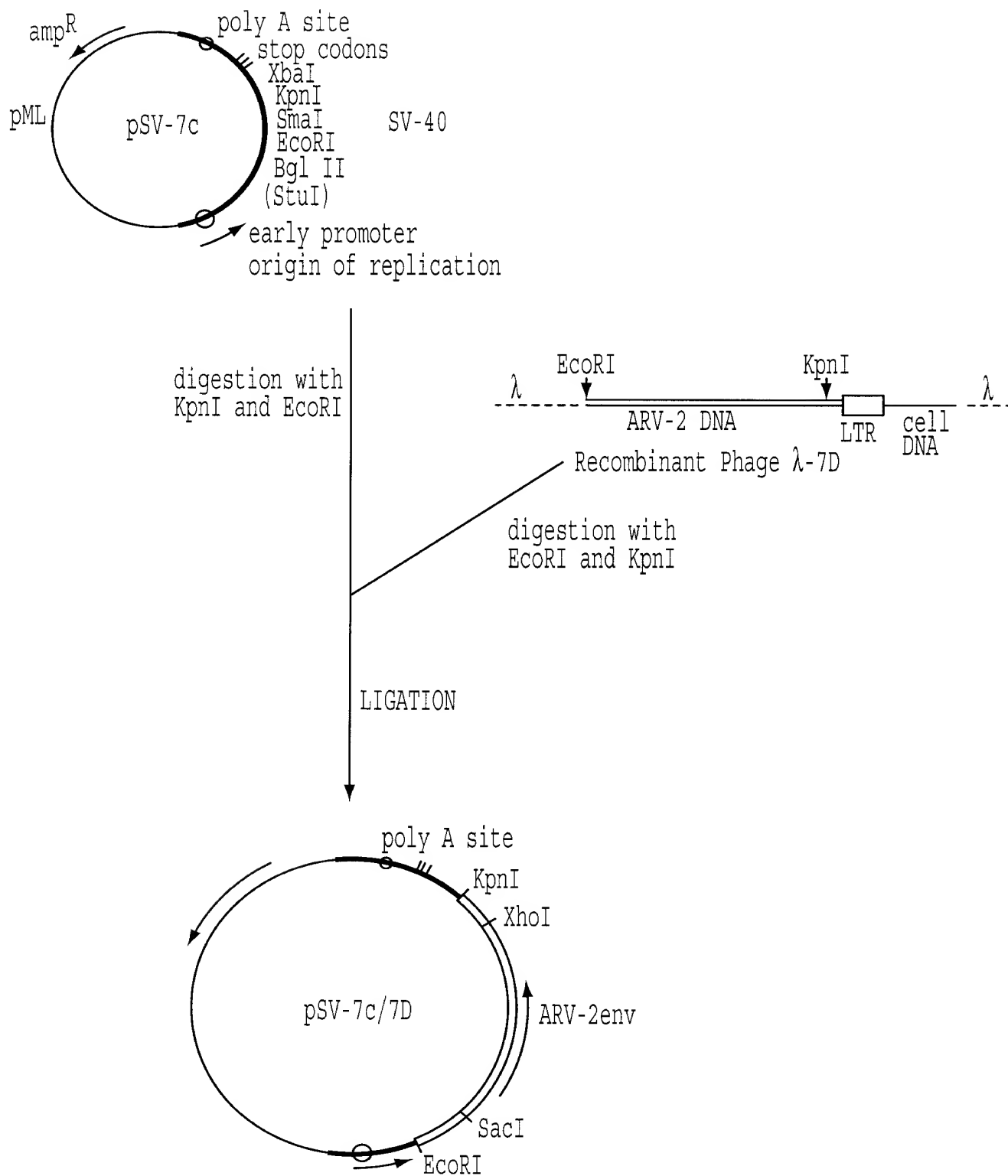


FIG. 6

REPLACEMENT SHEET

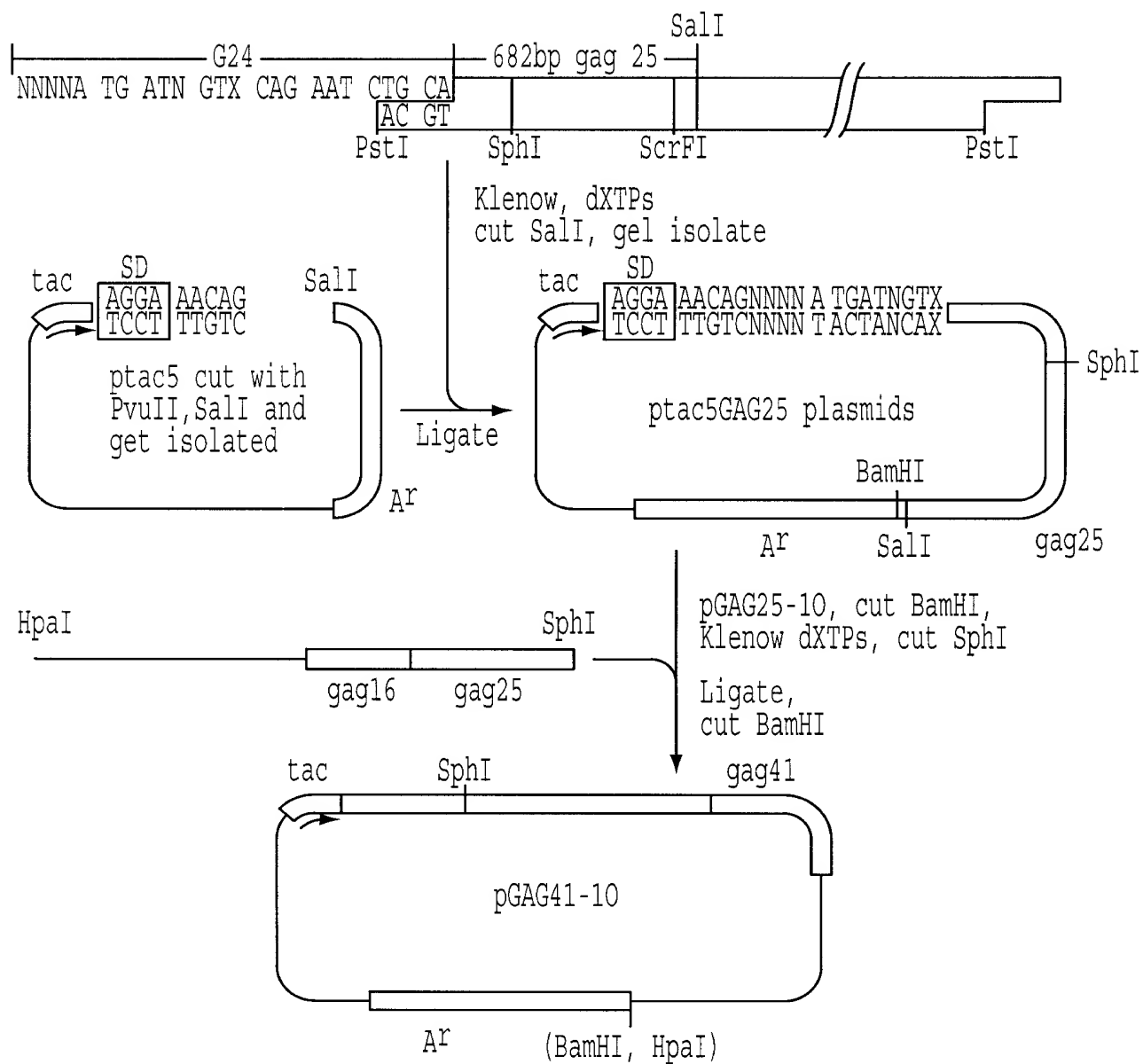


FIG. 7

REPLACEMENT SHEET

Met Ile Val
ATGATCGTA

ptac 5 Promotor

748 GlnAsnLeuGlnGlyGlnMetValHisGlnAlaIleSerProArgThrLeuAsnAlaTrp
CAGAATCTGCAGGGGCAAATGGTACATCAGGCCATATCACCTAGAAGCTTTAAATGCATGG

VallysValValGluGluLysAlaPheSerProGluValIleProMetPheSerAlaLeu 181
GTAAAGTAGTAGAAGAAAAGGCTTTCAGCCAGAAAGTAATACCCATGTTTTTCAGCATTA

868 SerGluGlyAlaThrProGlnAspLeuAsnThrMetLeuAsnThrValGlyGlyHisGln
TCAGAAGGAGCCACCCACAAGATTTAAACACCATGCTAAACACAGTGGGGGGACATCAA

AlaAlaMetGlnMetLeuLysGluThrIleAsnGluGluAlaAlaGluTrpAspArgVal 221
GCAGCCATGCAAATGTTAAAAGAGACTATCAATGAGGAAGCTGCAGAAATGGGATAGAGTG

988 HisProValHisAlaGlyProIleAlaProGlyGlnMetArgGluProArgGlySerAsp
CATCCAGTGCATGCAGGGCCTATTGCACCAGGCCAAATGAGAGAACCAAGGGGAAGTGAC

IleAlaGlyThrThrSerThrLeuGlnGluGlnIleGlyTrpMetThrAsnAsnProPro 261
ATAGCAGGAAGTACTAGTACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCT

1108 IleProValGlyGluIleTyrLysArgTrpIleIleLeuGlyLeuAsnLysIleValArg
ATCCAGTAGGAGAAATCTATAAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGA

MetTyrSerProThrSerIleLeuAspIleArgGlnGlyProLysGluProPheArgAsp 301
ATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAAGGAACCCCTTAGAGAT

1228 TyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnAspValLysAsn
TATGTAGACCGGTTCTATAAAACTCTAAGAGCCGAACAAGCTTCACAGGATGTAAAAAAT

TrpMetThrGluThrLeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLys 341
TGGATGACAGAAACCTTGTTGGTCCAAATGCAAACCCAGATTGTAAGACTATTTTAAAA

1348 AlaLeuGlyProAlaAlaThrLeuGluGluMetMetThrAlaCysGlnGlyValGlyGly
GCATTGGGACCAGCAGCTACACTAGAAGAAATGATGACAGCATGTGAGGGAGTGGGGGGGA

ProGlyHisLysAlaArgValLeu Stop Stop
CCCGGGCATAAAGCAAGAGTTTTGTGATAG

ptac 5

FIG. 8

REPLACEMENT SHEET

		ptac 5 Promotor	MetIleVal 141 ATGATCGTA
748	GlnAsnLeuGlnGlyGlnMetValHisGlnAlaIleSerProArgThrLeuAsnAlaTrp CAGAATCTGCAGGGGCAAATGGTACATCAGGCCATATCACCTAGAAGCTTTAAATGCATGG		
	VallysValValGluGluLysAlaPheSerProGluValIleProMetPheSerAlaLeu GTAAAAGTAGTAGAAGAAAAGGCTTTTCAGCCCAGAAGTAATACCCATGTTTTTCAGCATTA		181 G
868	SerGluGlyAlaThrProGlnAspLeuAsnThrMetLeuAsnThrValGlyGlyHisGln TCAGAAGGAGCCACCCACAAGATTTAAACACCATGCTAAACACAGTGGGGGGACATCAA		
	AlaAlaMetGlnMetLeuLysGluThrIleAsnGluGluAlaAlaGluTrpAspArgVal GCAGCCATGCAAATGTTAAAAGAGACTATCAATGAGGAAGCTGCAGAATGGGATAGAGTG		221
988	HisProValHisAlaGlyProIleAlaProGlyGlnMetArgGluProArgGlySerAsp CATCCAGTGCATGCAGGGCCTATTGCACCAAGGCCAAATGAGAGAACCAAGGGGAAGTGAC		A
	IleAlaGlyThrThrSerThrLeuGlnGluGlnIleGlyTrpMetThrAsnAsnProPro ATAGCAGGAAGTACTAGTACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCT		261
1108	IleProValGlyGluIleTyrLysArgTrpIleIleLeuGlyLeuAsnLysIleValArg ATCCCAAGTAGGAGAAATCTATAAAGATGGATAATCCTGGGATTAAATAAAATAGTAAGA		G
	MetTyrSerProThrSerIleLeuAspIleArgGlnGlyProLysGluProPheArgAsp ATGTATAGCCCTACCAGCATTCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGAT		301
1228	TyrValAspArgPheTyrLysThrLeuArgAlaGluGlnAlaSerGlnAspValLysAsn TATGTAGACCGGTTCTATAAACTCTAAGAGCCGAACAAGCTTCACAGGATGTAAAAAAT		
	TrpMetThrGluThrLeuLeuValGlnAsnAlaAsnProAspCysLysThrIleLeuLys TGGATGACAGAAACCTTGTTGGTCCAAAATGCAAACCCAGATTGTAAGACTATTTTAAAA		341
1348	AlaLeuGlyProAlaAlaThrLeuGluGluMetMetThrAlaCysGlnGlyValGlyGly GCATTGGGACCAGCAGCTACACTAGAAGAAATGATGACAGCATGTCAGGGAGTGGGGGGA		
	ProGlyHisLysAlaArgValLeuAlaGluAlaMetSerGlnValThrAsnProAlaAsn CCCGGCCATAAAGCAAGAGTTTTGGCTGAAGCCATGAGCCAAGTAACAAATCCAGCTAAC		381
1468	IleMetMetGlnArgGlyAsnPheArgAsnGlnArgLysThrValLysCysPheAsnCys ATAATGATGCAGAGAGGCAATTTTAGGAACCAAGAAAGACTGTTAAGTGTTTCAATTGT		
	GlyLysGluGlyHisIleAlaLysAsnCysArgAlaProArgLysLysGlyCysTrpArg GGCAAAGAAGGGCACATAGCCAAAATTGCAGGGCCCTAGGAAAAAGGGCTGTTGGAGA		421
1588	CysGlyArgGluGlyHisGlnMetLysAspCysThrGluArgGlnAlaAsnPheLeuGly PhePheArgG TGTGGAAGGGAAGGACACCAAATGAAAGATTGCACTGAGAGACAGGCTAATTTTTTAGGG		
	LysIleTrpProSerTyrLysGlyArgProGlyAsnPheLeuGlnSerArgProGluPro luAspLeuAlaPheLeuGlnGlyLysAlaArgGluPheSerSerGluGlnThrArgAla AAGATCTGGCCTTCTACAAGGGAAGGCCAGGGAATTTTCTTCAGAGCAGACCAGAGCCA		461 23
1708	ThrAlaProProGluGluSerPheArgPheGlyGluGluLysThrThrProSerGlnLys AsnSerProThrArgArgGluLeuGlnValTrpGlyGlyGluAsnAsnSerLeuSerGluA ACAGCCCCACCAGAAGAGAGCTTCAGGTTTGGGGAGGAGAAAAACAACTCCCTCTCAGAAG		
	GlnGluProIleAspLysGluLeuTyrProLeuThrSerLeuArgSerLeuPheGlyAsn laGlyAlaAspArgGlnGlyThrValSerPheAsnPheProGlnIleThrLeuTrpGln CAGGAGCCGATAGACAAGGAAGTATCCTTTAACTTCCCTCAGATCACTCTTTGGCAAC		501 63

FIG. 9A

REPLACEMENT SHEET

AspProSerSerGlnOC
 ArgProLeuValThrIleArgIleGlyGlyGlnLeuLysGluAlaLeuLeuAspThrGlyA
 1828 GACCCCTCGTCACAATAAGGATAGGGGGGCAACTAAAGGAAGCTCTATTAGATACAGGAG

 laAspAspThrValLeuGluGluMetAsnLeuProGlyLysTrpLysProLysMetIle 103
 CAGATGATACAGTATTAGAAGAAATGAATTTGCCAGGAAAATGGAAACCAAAAATGATAG

 GlyGlyIleGlyGlyPheIleLysValArgGlnTyrAspGlnIleProValGluIleCysG
 1948 GGGGAATTGGAGGTTTTATCAAAGTAAGACAGTACGATCAGATACCTGTAGAAATCTGTG

 lyHisLysAlaIleGlyThrValLeuValGlyProThrProValAsnIleIleGlyArg 143
 GACATAAAGCTATAGGTACAGTATTAGTAGGACCTACACCTGTCAACATAATTGGAAGAA

 AsnLeuLeuThrGlnIleGlyCysThrLeuAsnPheProIleSerProIleGluThrValP
 2068 ATCTGTTGACTCAGATTGGTTGTACTTTAAATTTCCCCATTAGTCCTATTGAACTGTAC

 roValLysLeuLysProGlyMetAspGlyProLysValLysGlnTrpProLeuThrGlu 183
 CAGTAAATTAAGCCAGGAATGGATGGCCAAAAGTTAAGCAATGGCCATTGACAGAAG

 GluLysIleLysAlaLeuValGluIleCysThrGluMetGluLysGluGlyLysIleSerL
 2188 AAAAAATAAAAGCATTAGTAGAGATATGTACAGAAATGGAAAAGGAAGGGAAAAATTTCAA

 ysIleGlyProGluAsnProTyrAsnThrProValPheAlaIleLysLysLysAspSer 223
 AAATTGGGCCTGAAATCCATACAATACTCCAGTATTTGCTATAAAGAAAAAAGACAGTA

 ThrLysTrpArgLysLeuValAspPheArgGluLeuAsnLysArgThrGlnAspPheTrpG
 2308 CTAAATGGAGAAAACCTAGTAGATTTTCAAGAACTTAATAAAGAACTCAAGACTTCTGGG

 luValGlnLeuGlyIleProHisProAlaGlyLeuLysLysLysLysSerValThrVal 263
 AAGTTCAGTTAGGAATACCACACCCCGCAGGGTTAAAAAGAAAAAATCAGTAACAGTAT

 LeuAspValGlyAspAlaTyrPheSerValProLeuAspLysAspPheArgLysTyrThrA
 2428 TGGATGTGGGTGATGCATACTTTTCAAGTTCCCTTAGATAAAGACTTTAGAAAGTATACTG

 laPheThrIleProSerIleAsnAsnGluThrProGlyIleArgTyrGlnTyrAsnVal 303
 CATTTACCATACCTAGTATAACAATGAGACACCAGGGATTAGATATCAGTACAATGTGC

 LeuProGlnGlyTrpLysGlySerProAlaIlePheGlnSerSerMetThrLysIleLeuG
 2548 TGCCACAGGGATGGAAAGGATCACCAGCAATATTCCAAAGTAGCATGACAAAAATCTTAG

 luProPheArgLysGlnAsnProAspIleValIleTyrGlnTyrMetAspAspLeuTyr 343
 AGCCTTTTAGAAAACAGAATCCAGACATAGTTATCTATCAATACATGGATGATTGTATG

 ValGlySerAspLeuGluIleGlyGlnHisArgThrLysIleGluGluLeuArgGlnHisL
 2668 TAGGATCTGACTTAGAAATAGGGCAGCATAGAACAAAAATAGAGGAAGTACAGACAGCATC

 euLeuArgTrpGlyPheThrThrProAspLysLysHisGlnLysGluProProPheLeu 383
 TGTGAGGTGGGATTTACCACACCAGACAAAAAACATCAGAAAGAACCTCCATTCTTT

 TrpMetGlyTyrGluLeuHisProAspLysTrpThrValGlnProIleMetLeuProGluL
 2788 GGATGGGTTATGAAGTCCATCCTGATAAATGGACAGTACAGCCTATAATGCTGCCAGAAA

 ysAspSerTrpThrValAsnAspIleGlnLysLeuValGlyLysLeuAsnTrpAlaSer 423
 AAGACAGCTGGACTGTCAATGACATACAGAAGTTAGTGGGAAAATTGAATTGGGCAAGTC

 GlnIleTyrAlaGlyIleLysValLysGlnLeuCysLysLeuLeuArgGlyThrLysAlaL
 2908 AGATTTATGCAGGGATTAAAGTAAAGCAGTTATGTAAACTCCTTAGAGGAACCAAGCAC

 euThrGluValIleProLeuThrGluGluAlaGluLeuGluLeuAlaGluAsnArgGlu 463 P
 TAACAGAAGTAATACCACTAACAGAAGAAGCAGAGCTAGAACTGGCAGAAAAACAGGGAGA O
 L

FIG. 9B

REPLACEMENT SHEET

IleLeuLysGluProValHisGluValTyrTyrAspProSerLysAspLeuValAlaGluI
3028 TTCTAAAAGAACCAGTACATGAAGTATATTATGACCCATCAAAAGACTTAGTAGCAGAAA
leGlnLysGlnGlyGlnGlyGlnTrpThrTyrGlnIleTyrGlnGluProPheLysAsn 503
TACAGAAGCAGGGGCAAGGCCAATGGACATATCAAATTTATCAAGAGCCATTAAAAATC
LeuLysThrGlyLysTyrAlaArgMetArgGlyAlaHisThrAsnAspValLysGlnLeuT
3148 TGAAAACAGGAAAGTATGCAAGGATGAGGGGTGCCCACACTAATGATGTAAAACAGTT
hrGluAlaValGluLysValSerThrGluSerIleValIleTrpGlyLysIleProLys 543
ptac 5

FIG. 9C

FIG. 10

REPLACEMENT SHEET

	PYK Promoter	MetSer ATGTCT
	ArgIleAspCysSerAlaThrGluLysLeuTrpValThrValTyrTyrGlyValProVal	51
	<u>AGAATCGAT</u> GTAGTGCTACAGAAAAATTGTGGGTCACAGTTTATTATGGAGTACCTGTG	
5908	TrpLysGluAlaThrThrThrLeuPheCysAlaSerAspAlaArgAlaTyrAspThrGlu	
	TGGAAAGAAGCAACTACCACTCTATTTTGTGCATCAGATGCTAGAGCATATGATACAGAG	
	ValHisAsnValTrpAlaThrHisAlaCysValProThrAspProAsnProGlnGluVal	91
	GTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAACCCACAAGAAGTA	
6028	ValLeuGlyAsnValThrGluAsnPheAsnMetTrpLysAsnAsnMetValGluGlnMet	
	GTATTGGGAAATGTGACAGAAAATTTTAACATGTGGAAAAATAACATGGTAGAACAGATG	
	GlnGluAspIleIleSerLeuTrpAspGlnSerLeuLysProCysValLysLeuThrPro	131
	CAGGAGGATATAATCAGTTTATGGGATCAAAGCCTAAAGCCATGTGTAAAATTAACCCCA	
6148	LeuCysValThrLeuAsnCysThrAspLeuGlyLysAlaThrAsnThrAsnSerSerAsn	
	CTCTGTGTTACTTTAAATTGCACTGATTTGGGGAAGGCTACTAATACCAATAGTAGTAAT	
	TrpLysGluGluIleLysGlyGluIleLysAsnCysSerPheAsnIleThrThrSerIle	171
	TGGAAAGAAGAAATAAAAGGAGAAATAAAAACTGCTCTTTCAATATCACCACAAGCATA	
6268	ArgAspLysIleGlnLysGluAsnAlaLeuPheArgAsnLeuAspValValProIleAsp	
	AGAGATAAGATTGAGAAAGAAAATGCACCTTTTTCGTAAACCTTGATGTAGTACCAATAGAT	
	AsnAlaSerThrThrThrAsnTyrThrAsnTyrArgLeuIleHisCysAsnArgSerVal	211
	AATGCTAGTACTACTACCAACTATACCAACTATAGGTTGATACATTGTAACAGATCAGTC	
6388	IleThrGlnAlaCysProLysValSerPheGluProIleProIleHisTyrCysThrPro	
	ATTACACAGGCCTGTCCAAAGGTATCATTTGAGCCAATTCCCATACATTATTGTACCCCG	
	AlaGlyPheAlaIleLeuLysCysAsnAsnLysThrPheAsnGlyLysGlyProCysThr	251
	GCTGGTTTTGCGATTCTAAAGTGTAATAATAAACGTTCAATGGAAAAGGACCATGTACA	

FIG. 11A

REPLACEMENT SHEET

6508 AsnValSerThrValGlnCysThrHisGlyIleArgProIleValSerThrGlnLeuLeu
 AATGTCAGCACAGTACAATGTACACATGGAATTAGGCCAATAGTGTCAACTCAACTGCTG
 LeuAsnGlySerLeuAlaGluGluGluValValIleArgSerAspAsnPheThrAsnAsn 291
 TTAAATGGCAGTCTAGCAGAAGAAGAGGTAGTAATTAGATCTGACAATTTACGAACAAT
 6628 AlaLysThrIleIleValGlnLeuAsnGluSerValAlaIleAsnCysThrArgProAsn
 GCTAAAACCATAATAGTACAGCTGAATGAATCTGTAGCAATTAAGTGTACAAGACCCAAC
 AsnAsnThrArgLysSerIleTyrIleGlyProGlyArgAlaPheHisThrThrGlyArg 331
 AACAAACAAGAAAAAGTATCTATATAGGACCAGGGAGAGCATTTCATACAACAGGAAGA
 6748 IleIleGlyAspIleArgLysAlaHisCysAsnIleSerArgAlaGlnTrpAsnAsnThr
 ATAATAGGAGATATAAGAAAAGCACATTGTAACATTAGTAGAGCACAAATGGAATAACACT
 LeuGluGlnIleValLysLysLeuArgGluGlnPheGlyAsnAsnLysThrIleValPhe 371
 TTAGAACAGATAGTTAAAAAATTAAGAGAACAGTTTGGGAATAATAAAACAATAGTCTTT
 6868 AsnGlnSerSerGlyGlyAspProGluIleValMetHisSerPheAsnCysArgGlyGlu
 AATCAATCCTCAGGAGGGGACCCAGAAATTGTAATGCACAGTTTTAATTGTAGAGGGGAA
 PhePheTyrCysAsnThrThrGlnLeuPheAsnAsnThrTrpArgLeuAsnHisThrGlu 411 E
 TTTTTCTACTGTAATACAACACAACCTGTTTAATAATACATGGAGGTTAAATCACACTGAA
 6988 GlyThrLysGlyAsnAspThrIleIleLeuProCysArgIleLysGlnIleIleAsnMet
 GGAACATAAGGAAATGACACAATCATACTCCCATGTAGAATAAAACAAATTATAAACATG
 TrpGlnGluValGlyLysAlaMetTyrAlaProProIleGlyGlyGlnIleSerCysSer 451 N
 TGGCAGGAAGTAGGAAAAGCAATGTATGCCCTCCCATTTGGAGGACAAATTAGTTGTTCA
 7108 SerAsnIleThrGlyLeuLeuLeuThrArgAspGlyGlyThrAsnValThrAsnAspThr
 TCAAAATATTACAGGGCTGCTATTAACAAGAGATGGTGGTACAAATGTAACATAATGACACC
 GluValPheArgProGlyGlyGlyAspMetArgAspAsnTrpArgSerGluLeuTyrLys 491 V
 GAGGTCTTCAGACCTGGAGGAGGAGATATGAGGGACAATTGGAGAAGTGAATTATATAAA
 7228 TyrLysValIleLysIleGluProAsnSerValSer
 TATAAAGTAATAAAAATTGAACCAAAATTCGGTATCTTGA

PYK Terminator

FIG. 11B

REPLACEMENT SHEET

Nucleotide positions relative to Figure 5.	1	MetIleAspLysAlaGlnGluGluHisGluLysTyrHisSerAsnTrp
		AGGXAACAG:::ATGAT:GA:AAGGCACAAGAAGAACATGAGAAATATCACAGTAATTGG TCCXTTGTC:::TACTA:CT:TTCCGTGTTCTTCTTGACTCTTTATAGTGTCATTAACC
		32 mbo11, 38 nla111,
3820	62	ArgAlaMetAlaSerAspPheAsnLeuProProValValAlaLysGluIleValAlaSer AGAGCCATGGCTAGTGATTTTAACTGCCACCTGTAGTAGCAAAAGAAATAGTAGCCAGC TCTCGGTACCGATCACTAAAATTGGACGGTGGACATCATCGTTTTCTTTATCATCGGTCG
		66 nco1, 67 nla111, 118 nspBII pvu11, 119 alu1,
3880	122	CysAspLysCysGlnLeuLysGlyGluAlaMetHisGlyGlnValAspCysSerProGly TGTGATAAATGTCAGCTAAAAGGAGAAGCCATGCATGGACAAGTAGACTGTAGTCCAGGA ACACTATTTACAGTCGATTTTCTCTTCGGTACGTACCTGTTCTCTGACATCAGGTCCT
		135 alu1, 151 nla111, 152 ns11 ava3, 155 nla111, 164 acc1, 1 76 apy1 bstXI ecor11 scrF1,
3940	182	IleTrpGlnLeuAspCysThrHisLeuGluGlyLysIleIleLeuValAlaValHisVal ATATGGCAACTAGATTGTACACATCTAGAAGGAAAAATTATCCTGGTAGCAGTTTCATGTA TATACCGTTGATCTAACATGTGTAGATCTTCTTTTAAATAGGACCATCGTCAAGTACAT
		198 rsa1, 205 xba1, 223 apy1 ecor11 scrF1, 236 nla111,
4000	242	AlaSerGlyTyrIleGluAlaGluValIleProAlaGluThrGlyGlnGluThrAlaTyr GCCAGTGGATATATAGAAGCAGAAGTTATTCAGCAGAGACAGGGCAGGAAACAGCATAT CGGTCACCTATATATCTTCGTCTTCAATAAGGTCGTCTCTGTCCCGTCCTTTGTCGTATA
		263 xmn1,
4060	302	PheLeuLeuLysLeuAlaGlyArgTrpProValLysThrIleHisThrAspAsnGlySer TTTCTCTTAAATTAGCAGGAAGATGGCCAGTAAAAACAATACATACAGACAATGGCAGC AAAGAGAATTTAATCGTCCTTCTACCGGTCATTTTGTATGTATGTCTGTTACCGTCG
		321 mbo11, 326 ball cfr1 hae1, 327 hae111, 357 bbv fnu4h1,
4120	362	AsnPheThrSerThrThrValLysAlaAlaCysTrpTrpAlaGlyIleLysGlnGluPhe AATTTACCCAGTACTACGGTTAAGGCCCTGTTGGTGGGCAGGGATCAAGCAGGAATTT TTAAAGTGGTCATGATGCCAATTCCGGCGGACAACCACCCGTCCTAGTTCGTCTTAA
		366 hph, 371 scal, 372 rsa1, 385 hae111, 386 fnu4h1 nsb11, 4 05 bin1, 406 dpn1 sau3a,
4180	422	GlyIleProTyrAsnProGlnSerGlnGlyValValGluSerMetAsnAsnGluLeuLys GGCATTCCCTACAATCCCCAAAGTCAAGGAGTAGTAGAATCTATGAATAATGAATTAAG CCGTAAGGGATGTTAGGGGTTTCAGTTCCTCATCATCTTAGATACTTATTACTTAATTC
		423 bsm1, 458 hinf1,
4240	482	LysIleIleGlyGlnValArgAspGlnAlaGluHisLeuLysThrAlaValGlnMetAla AAAATTATAGGACAGGTAAGAGATCAGGCTGAACACCTTAAGACAGCAGTACAAATGGCA TTTTAATATCCTGTCCATTCTCTAGTCCGACTTGTGGAATTCTGTCGTATGTTTACCGT
		503 dpn1 sau3a, 518 af111, 530 rsa1,
4300	542	ValPheIleHisAsnPheLysArgLysGlyGlyIleGlyGlyTyrSerAlaGlyGluArg GTATTCATCCACAATTTTAAAGAAAAGGGGGGATTGGGGGATACAGTGCAGGGGAAAGA CATAAGTAGGTGTTAAATTTCTTTTCCCCCTAACCCCTATGTCACGTCCCCTTTCT
		547 fok1, 557 aha111,

FIG. 12A

REPLACEMENT SHEET

4360 602 IleValAspIleIleAlaThrAspIleGlnThrLysGluLeuGlnLysGlnIleThrLys
 ATAGTAGACATAATAGCAACAGACATACAACTAAAGAACTACAAAAGCAAATTACAAAA
 TATCATCTGTATTATCGTTGTCTGTATGTTTGATTTCITGATGTTTTCGTTTAATGTTTT
 605 acc1,

4420 662 IleGlnAsnPheArgValTyrTyrArgAspAsnLysAspProLeuTrpLysGlyProAla
 ATTCAAAATTTTCGGGTTTATTACAGGGACAACAAAGATCCCCCTTTGGAAAGGACCAGCA
 TAAGTTTTAAAGCCCAAATAATGTCCCTGTTGTTTCTAGGGGAAACCTTTCTGGTCGT
 697 xho2, 698 dpn1 sau3a, 713 asu1 ava2,

4480 722 LysLeuLeuTrpLysGlyGluGlyAlaValValIleGlnAspAsnSerAspIleLysVal
 AAGCTTCTCTGGAAAGGTGAAGGGGCAGTAGTAATACAAGATAATAGTGACATAAAAGTA
 TTCGAAGAGACCTTTCCACTTCCCGTCATCATTATGTTCTATTATCACTGTATTTTCAT
 722 hind111, 723 alu1, 737 hph,

4540 782 ValProArgArgLysAlaLysIleIleArgAspTyrGlyLysGlnMetAlaGlyAspAsp
 GTGCCAAGAAGAAAAGCAAAAATCATTAGGGATTATGGAAAACAGATGGCAGGTGATGAT
 CACGGTCTTCTTTTCGTTTTTAGTAATCCCTAATACCTTTTGTCTACCGTCCACTACTA
 789 mbo11, 833 hph,

4600 842 CysValAlaSerArgGlnAspGluAspAM
 TGTGTGGCAAGTAGACAGGATGAGGATTAGTCGACGGAATTCTTTAGTAAACACC
 ACACACCGTTCATCTGTCCTACTCCTAATCAGCTGCCTTAAGAAATCATTTTGTGG
 852 acc1, 859 fok1, 863 mnl1, 871 acc1 hind11 sal1, 872 taq1
 , 878 ecor1,

FIG. 12B

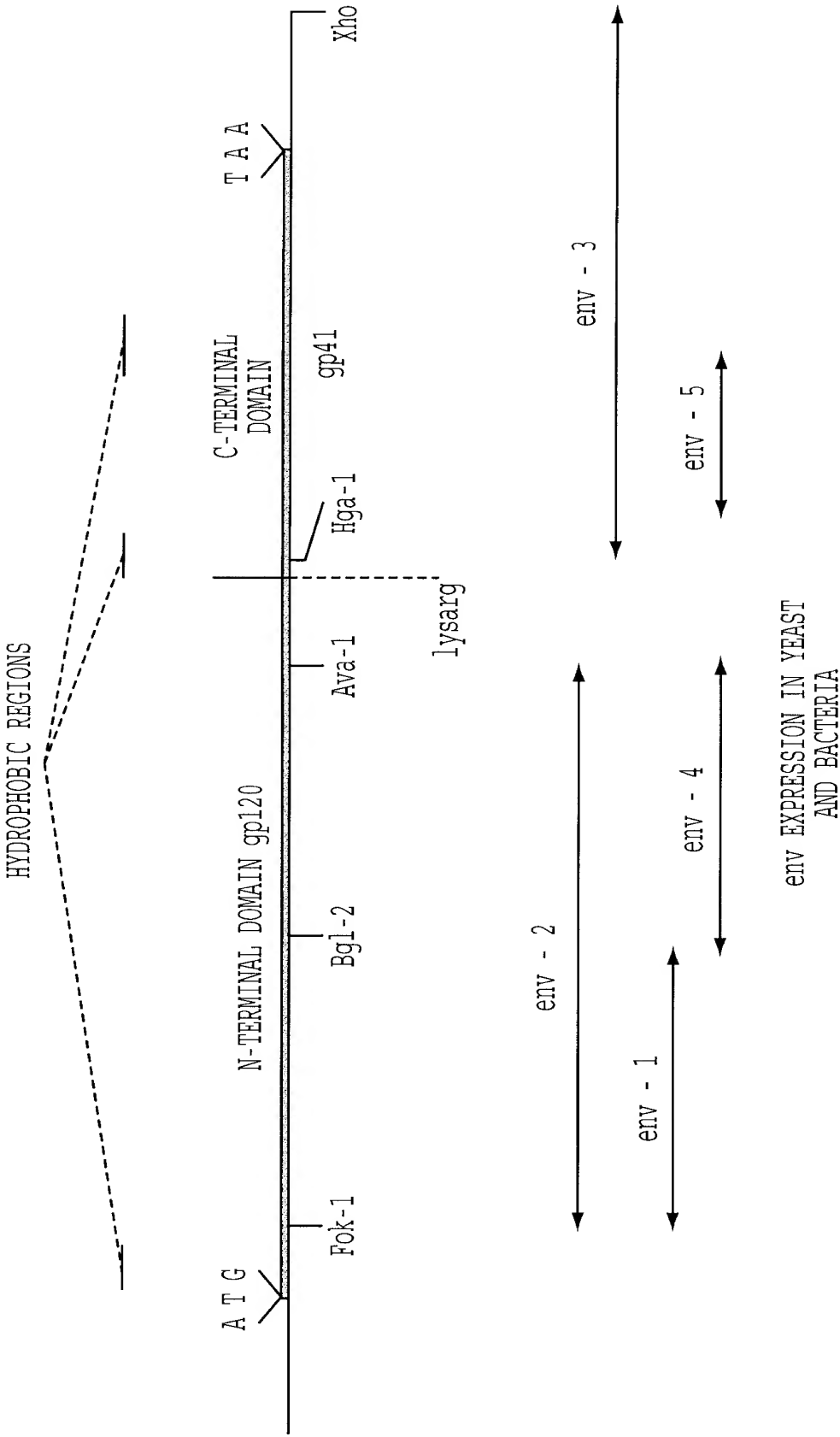


FIG. 13

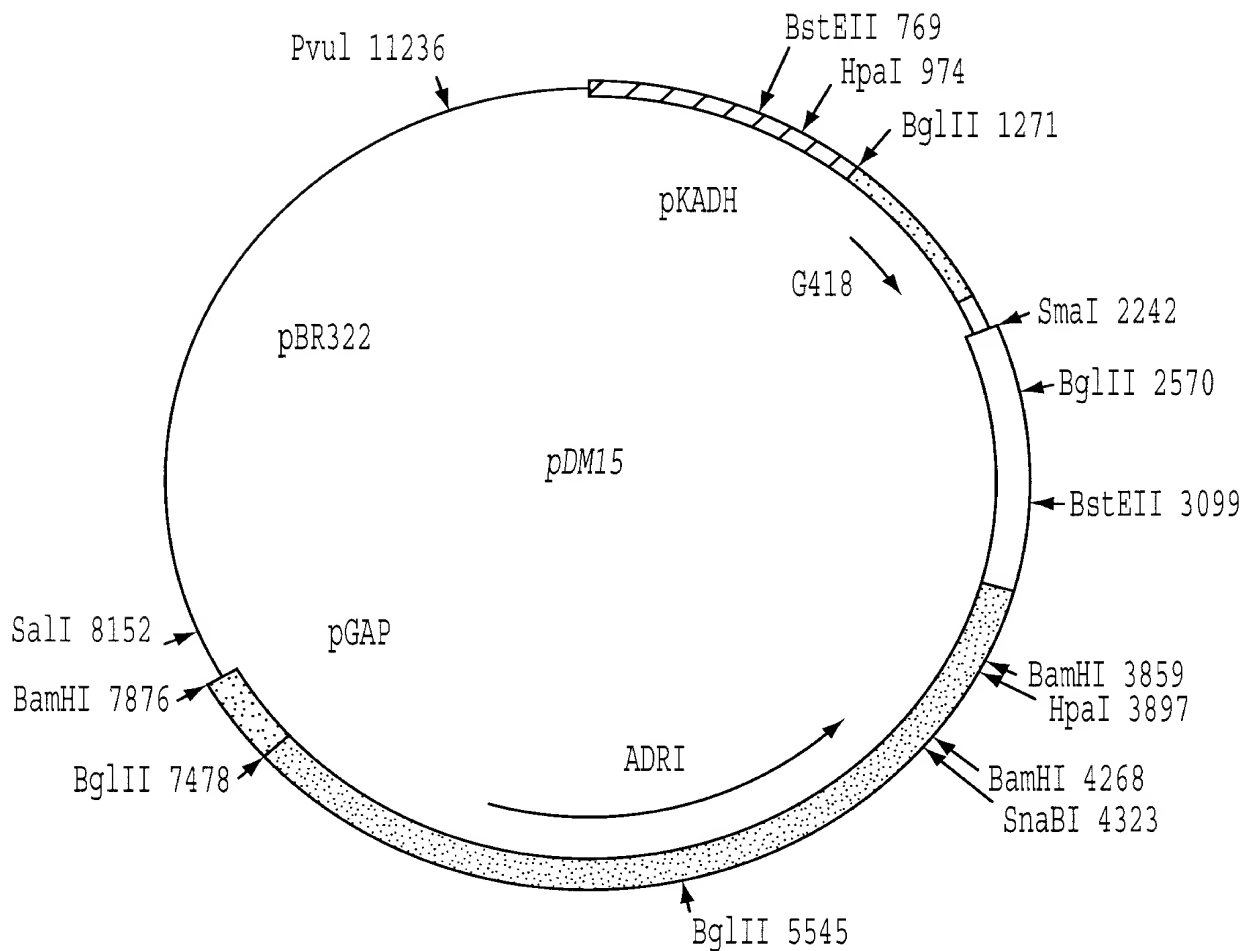


FIG. 14

REPLACEMENT SHEET

SOD
 MetAlaThrLysAlaValCysValLeuLysGlyAspGlyProValGlnGlyIleIleAsn
 1 CATGGCGACGAAGGCCGTGTGCGTGCTGAAGGGCGACGGCCAGTGCAGGGCATCATCAAT
 CGCTGCTTCCGGCACACGCACGACTTCCCCTGCCGGGTCACGTCCCGTAGTAGTTA
 PheGluGlnLysGluSerAsnGlyProValLysValTrpGlySerIleLysGlyLeuThr
 62 TTCGAGCAGAAGGAAAGTAATGGACCAAGTGAAGGTGTGGGGAAGCATTAAAGGACTGACT
 AAGCTCGTCTTCTTTTATTACCTGGTCACTTCCACACCCCTTCGTAATTTCTGACTGA
 GluGlyLeuHisGlyPheHisValHisGluPheGlyAspAsnThrAlaGlyCysThrSer
 122 GAAGGCCTGCATGGATTCCATGTTTCATGAGTTTGGAGATAATACAGCAGGCTGTACCACT
 CTTCCGGACGTACCTAAGGTACAAGTACTCAAACCTCTATTATGTCTGTCGACATGGTCA
 AlaGlyProHisPheAsnProLeuSerArgLysHisGlyGlyProLysAspGluGluArg
 182 GCAGGTCCTCACTTTAATCCTCTATCCAGAAAACACGGTGGGCCAAAGGATGAAGAGAGG
 CGTCCAGGAGTGAAATTAGGAGATAGGTCTTTTGTGCCACCCGGTTTCTACTTCTCTCC
 HisValGlyAspLeuGlyAsnValThrAlaAspLysAspGlyValAlaAspValSerIle
 242 CATGTTGGAGACTTGGGCAATGTGACTGCTGACAAAGATGGTGTGGCCGATGTGTCTATT
 GTACAACCTCTGAACCCGTTACACTGACGACTGTTTCTACCACACCCGGCTACACAGATAA
 GluAspSerValIleSerLeuSerGlyAspHisCysIleIleGlyArgThrLeuValVal
 302 GAAGATTCTGTGATCTCACTCTCAGGAGACCATTGCATCATTGGCCGCACACTGGTGGTC
 CTTCTAAGACACTAGAGTGAGAGTCTCTGGTAACGTAGTAACCGGCGTGTGACCACCAG
 HisGluLysAlaAspAspLeuGlyLysGlyGlyAsnGluGluSerThrLysThrGlyAsn
 362 CATGAAAAAGCAGATGACTTGGGCAAGGTGGAAATGAAGAAAGTACAAAGACAGGAAAC
 GTACTTTTTCTGCTACTGAACCCGTTTCCACCTTTACTTCTTTCTGTTCTGTCTTTG
 ENV 5B
 AlaGlySerArgLeuAlaCysGlyValIleGlyIleAlaMetAlaIleGluAlaGlnGln
 422 GCTGGAAGTCGTTTGGCTTGTGGTGTAAATGGGATCGCCATGGCTATCGAAGCTCAACAA
 CGACCTTCAGCAAACCGAACACCACATTAACCCTAGCGGTACCGATAGCTTCGAGTTGTT
 HisLeuLeuGlnLeuThrValTrpGlyIleLysGlnLeuGlnAlaArgValLeuAlaVal
 482 CACTTGCTGCAGTTGACCGTTTGGGGTATCAAGCAGTTGCAGGCTAGAGTTTTGGCTGTT
 GTGAACGACGTCAACTGGCAAACCCCATAGTTCTGTCACGTCCGATCTCAAACCGACAA
 GluArgTyrLeuArgAspGlnGlnLeuLeuGlyIleTrpGlyCysSerGlyLysLeuIle
 542 GAAAGATACTTGAGAGATCAACAATTGTTGGGTATCTGGGGTTGTTCTGGTAAGTTGATT
 CTTTCTATGAACCTCTAGTTGTTAACAACCCATAGACCCCAACAAGACCATTCAACTAA
 CysThrThrAlaValProTrpAsnAlaSerTrpSerAsnLysSerLeuGluAspIleTrp
 602 TGTACCACCGCTGTTCCCTGGAACGCTTCTTGGTCTAACAAGTCTTTGGAAGACATCTGG
 ACATGGTGGCGACAAGGGACCTTGCGAAGAACCAGATTGTTTCAGAAACCTTCTGTAGACC
 AspAsnMetThrTrpMetGlnTrpGluArgGluIleAspAsnTyrThrAsnThrIleTyr
 662 GACAACATGACCTGGATGCAATGGGAAAGAGAAATCGACAACCTACACCAACACCATCTAC
 CTGTTGTACTGGACCTACGTTACCCCTTCTCTTTAGCTGTTGATGTGGTTGTGGTAGATG
 ThrLeuLeuGluGluSerGlnAsnGlnGlnGluLysAsnGluGlnGluLeuLeuGluLeu
 722 ACCTTGTGGAGGAATCTCAAAACCAACAAGAAAAGAACGAACAAGAATTGTTGGAATTG
 TGAACAACCTCCTTAGAGTTTTGGTTGTTCTTTTCTTGCTTGTCTTAACAACCTTAAC
 AspLysTrpAlaSerLeuTrpAsnTrpPheSerIleThrAsnTrpAM
 782 GACAAGTGGGCAAGCTTGTGGAACCTGGTTCTCTATCACCAACTGGTAG
 CTGTTACCCGTTTGAACACCTTGACCAAGAGATAGTGGTTGACCATCAGCT

Translated Mol. Weight = 30414.22

FIG. 15

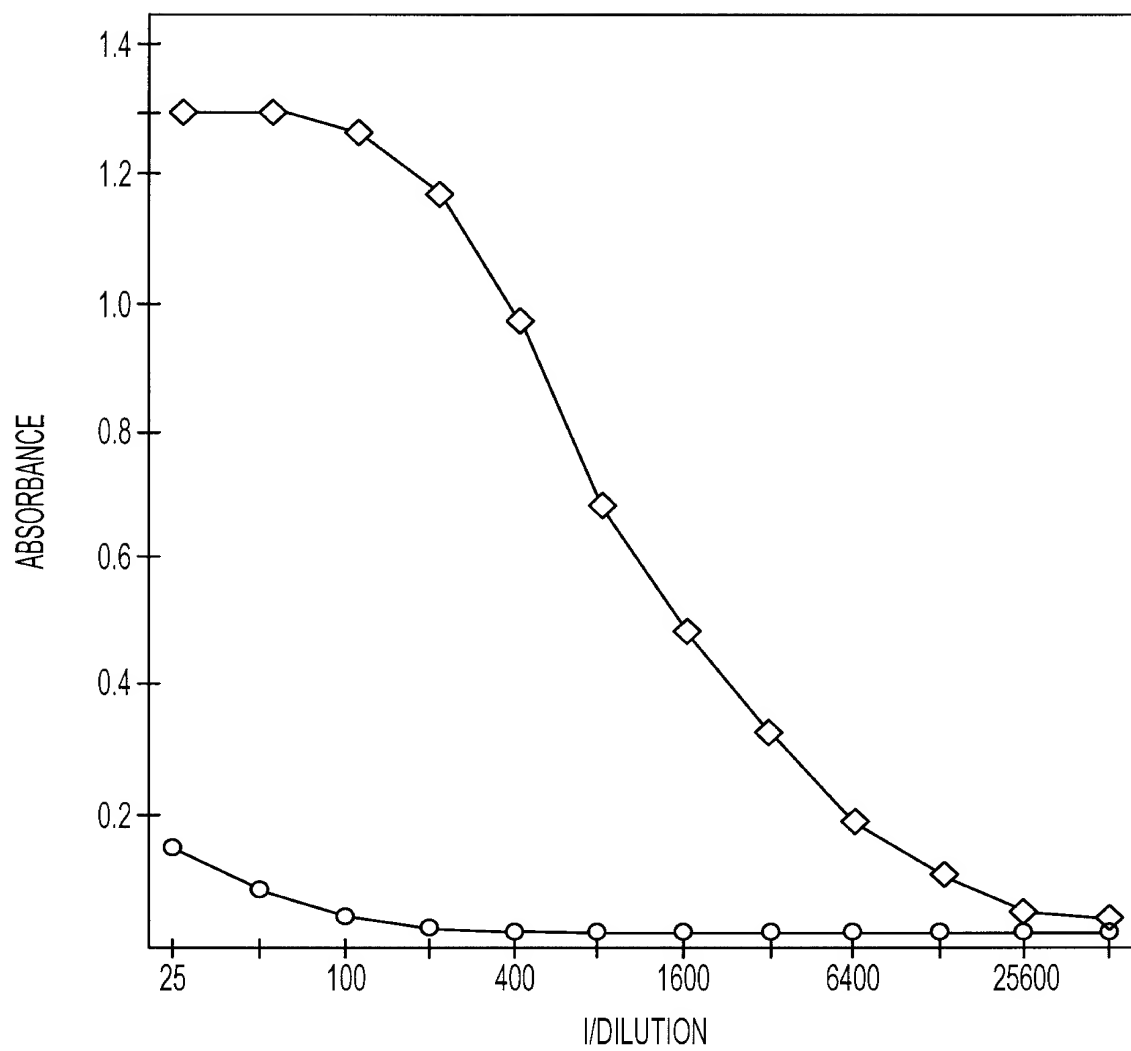


FIG. 16A

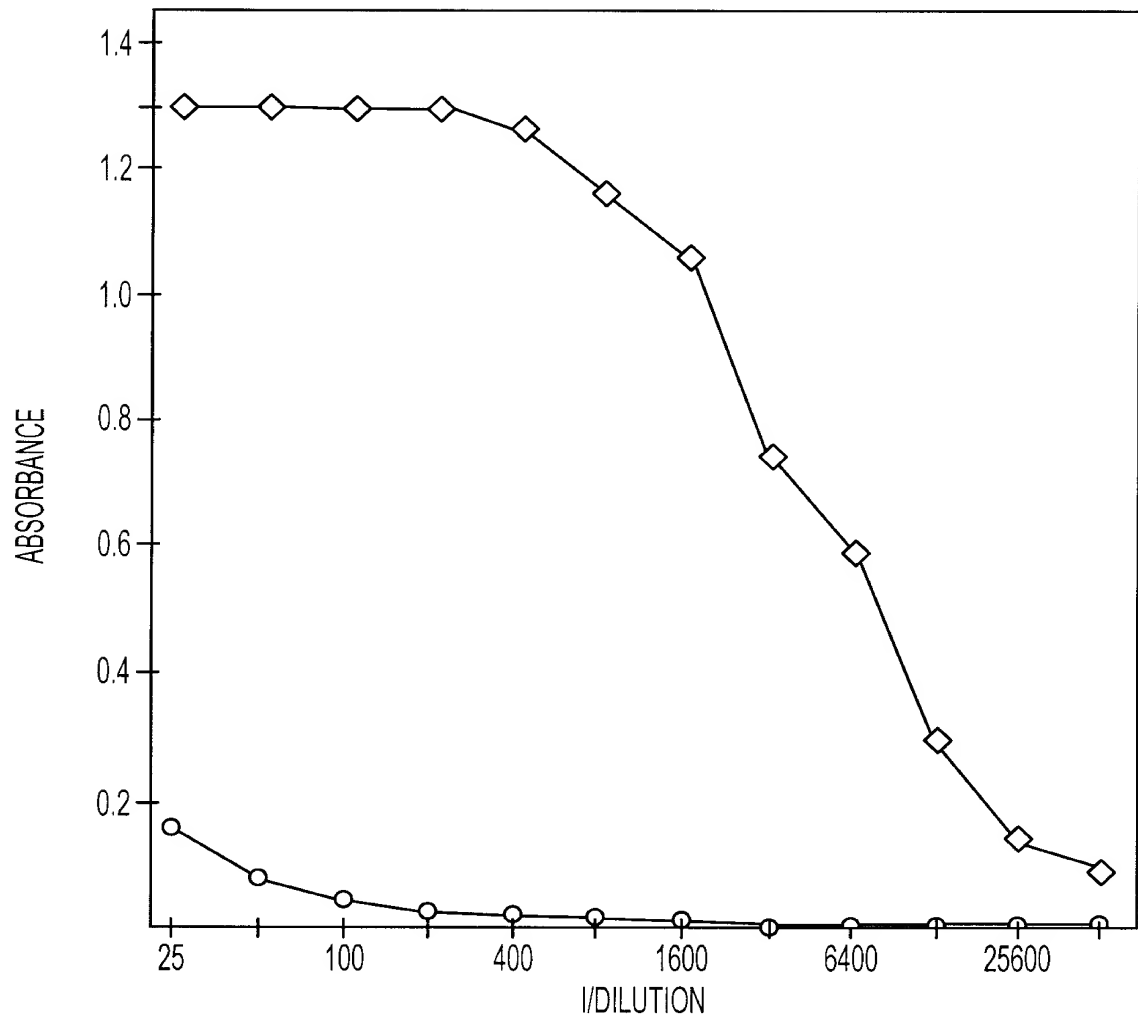


FIG. 16B

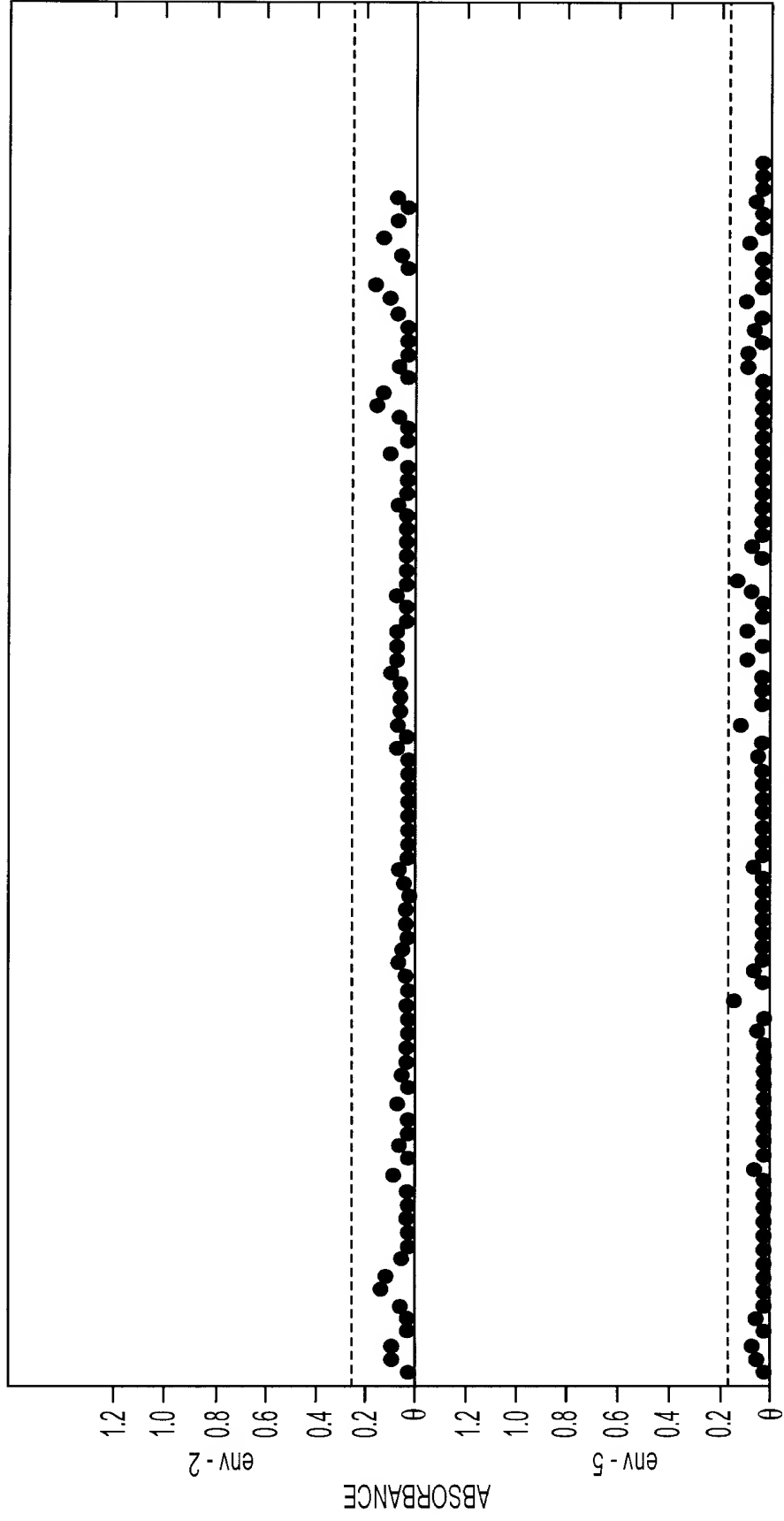


FIG. 17

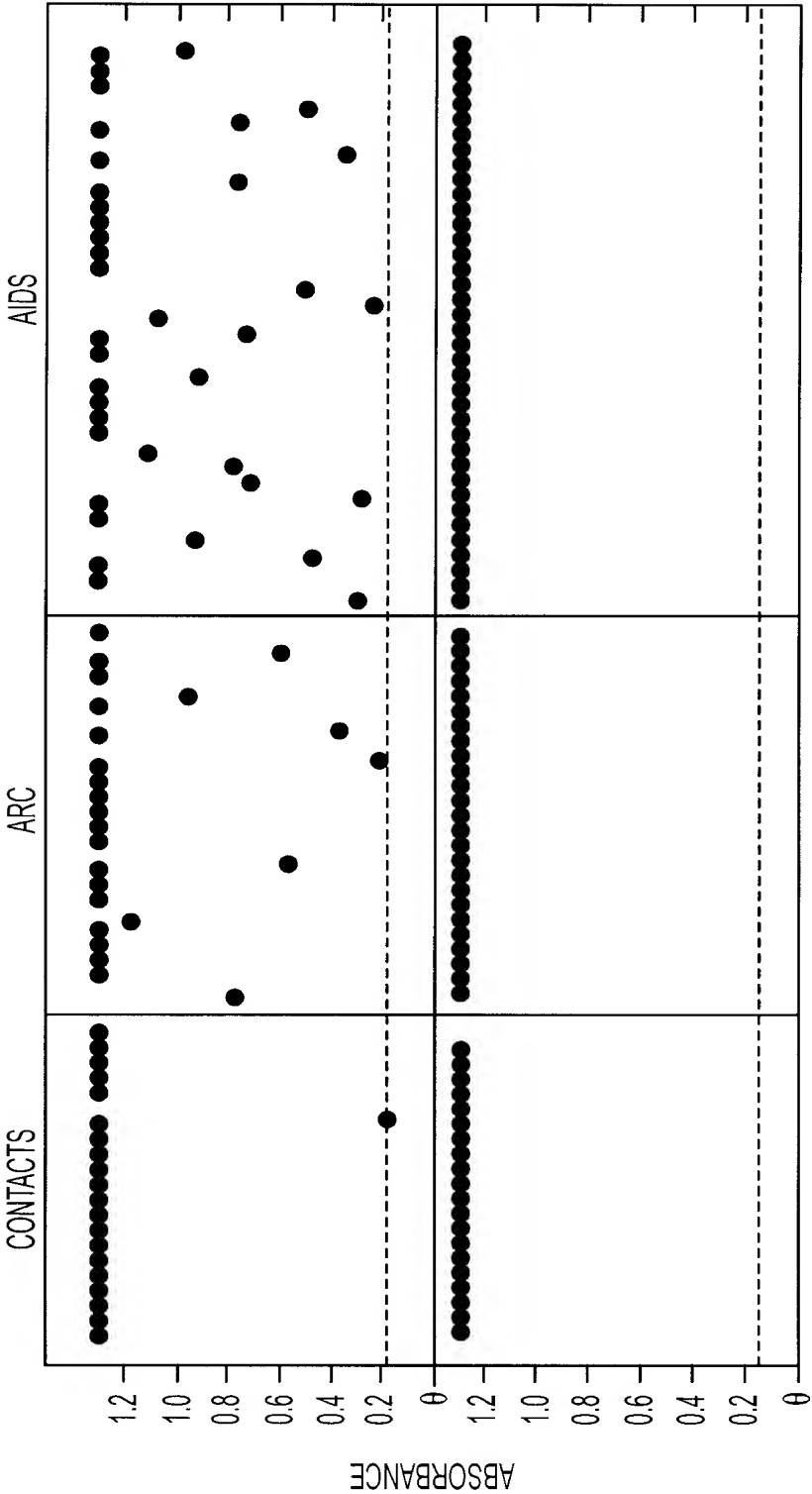


FIG. 18

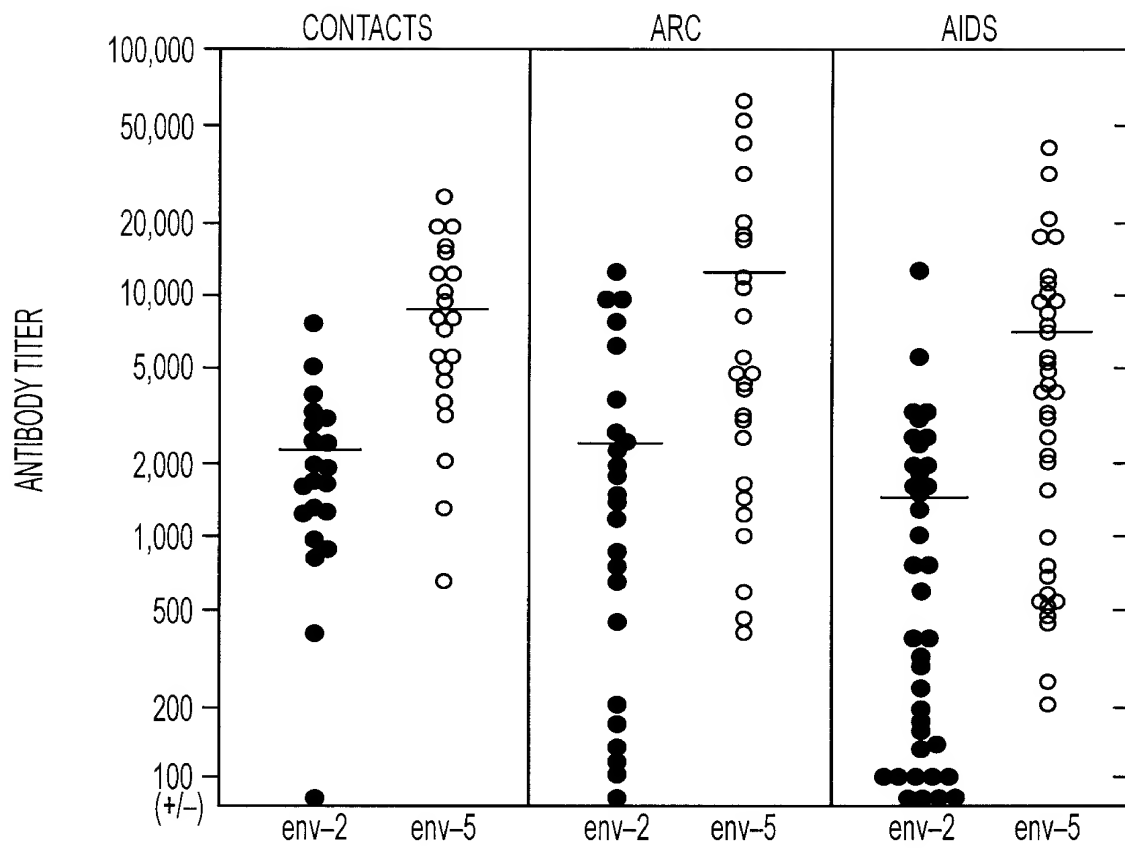


FIG. 19

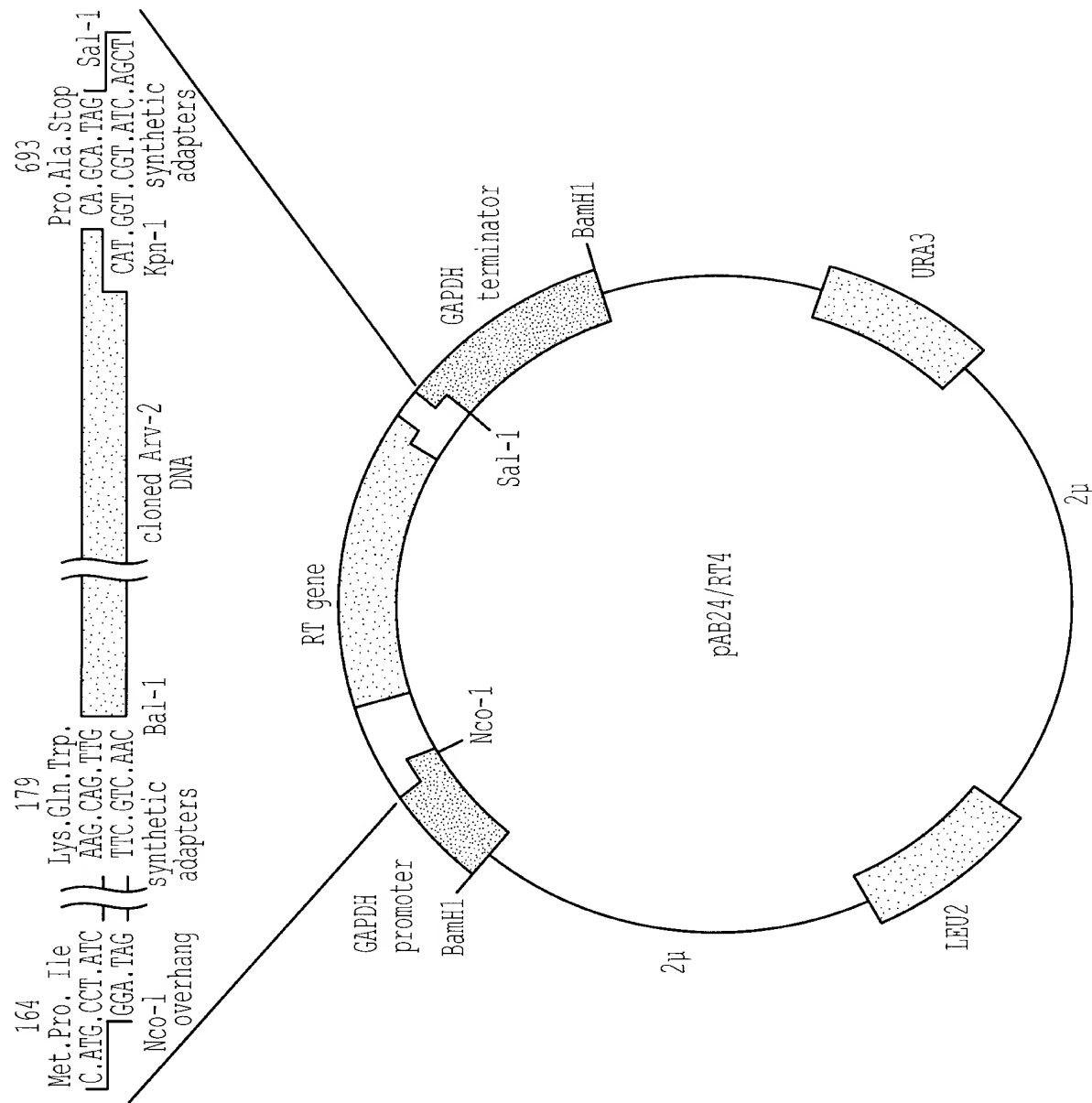


FIG. 20

REPLACEMENT SHEET

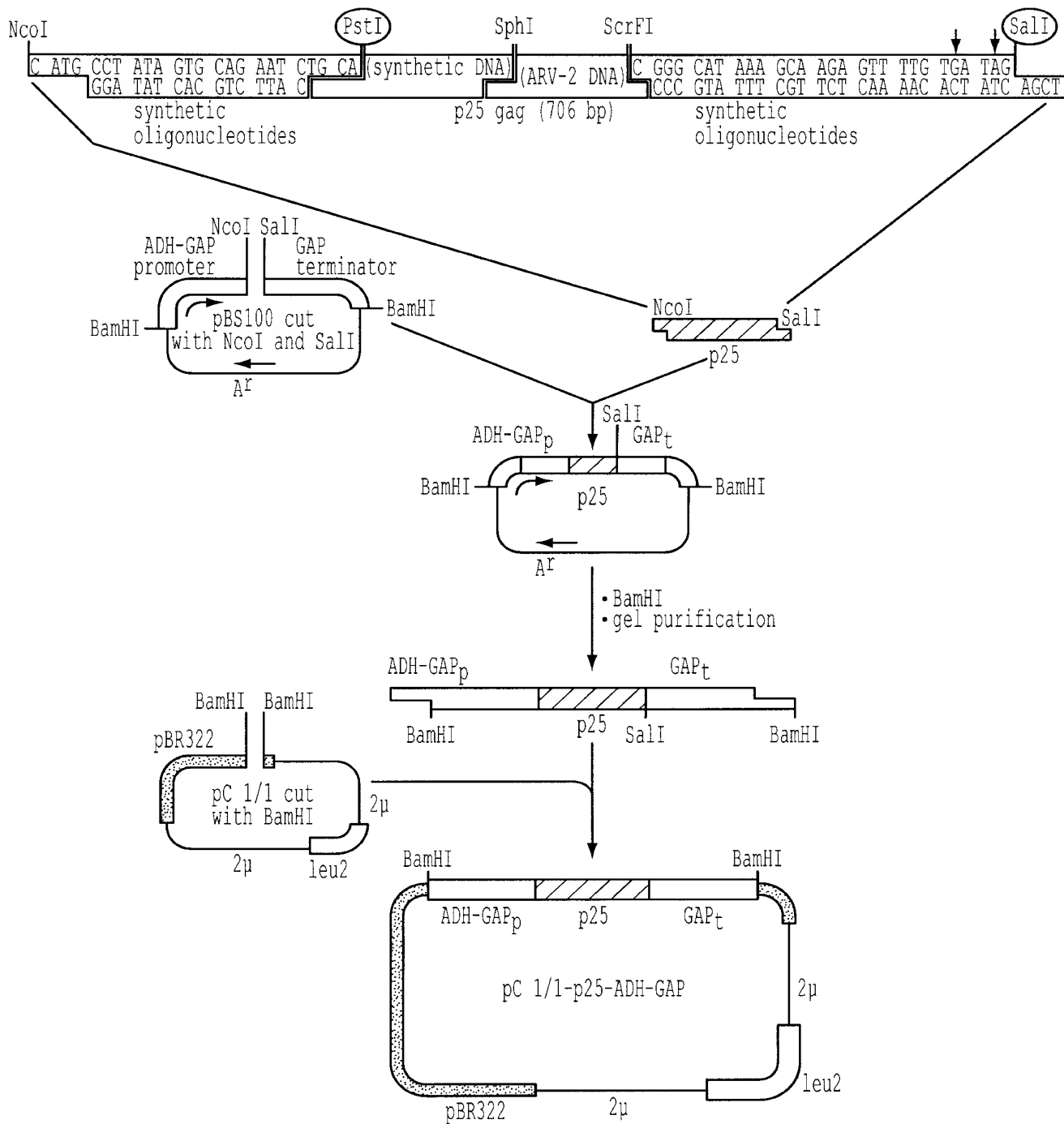


FIG. 21

REPLACEMENT SHEET

c	1	Met	Pro	Ile	Val	Gln	Asn	Leu	Gln	Gly	10	Gln	Met	Val	His	Gln
	ATG	CCT	ATA	GTG	CAG	AAT	CTG	CAG	GGG	CAA	ATG	GTA	CAT	CAG		
<hr/>																
Ala	Ile	Ser	Pro	Arg	20	Thr	Leu	Asn	Ala	Trp	Val	Lys	Val	Val	Val	Glu
GCC	ATA	TCA	CCT	AGA	ACT	TTA	AAT	GCT	TGG	GTA	AAA	GTA	GTA	GTA	GAA	
<hr/>																
30	Lys	Ala	Phe	Ser	Pro	Glu	Val	Ile	Pro	40	Met	Phe	Ser	Ala	Leu	
GAA	AAG	GCT	TTC	AGC	CCA	GAA	GTA	ATA	CCC	ATG	TTT	TCA	GCA	TTA		
<hr/>																
Ser	Glu	Gly	Ala	Thr	50	Pro	Gln	Asp	Leu	Asn	Thr	Met	Leu	Asn	Thr	
TCA	GAA	GGA	GCC	ACC	CCT	CAA	GAT	TTA	AAC	ACC	ATG	CTA	AAC	ACA		
<hr/>																
60	Gly	Gly	His	Gln	Ala	Ala	Met	Gln	Met	70	Leu	Lys	Glu	Thr	Ile	
GTG	GGG	GGA	CAT	CAA	GCA	GCC	ATG	CAA	ATG	TTA	AAA	GAG	ACT	ATC		
<hr/>																
Asn	Glu	Glu	Ala	Ala	80	Glu	Trp	Asp	Arg	Val	His	Pro	Val	His	Ala	
AAT	GAG	GAG	GCT	GCC	GAA	TGG	GAT	AGA	GTG	CAT	CCA	GTG	CAT	GCA		
<hr/>																
90	Pro	Ile	Ala	Pro	Gly	Gln	Met	Arg	Glu	100	Pro	Arg	Gly	Ser	Asp	
GGG	CCT	ATT	GCA	CCA	GGC	CAA	ATG	AGA	GAA	CCA	AGG	GGA	AGT	GAC		

FIG. 22A

REPLACEMENT SHEET

Ile	Ala	Gly	Thr	Thr	110	Ser	Thr	Leu	Gln	Glu	Gln	Ile	Gly	Trp	Met
ATA	GCA	GGA	ACT	ACT	AGT	ACC	CTT	CAG	GAA	CAA	ATA	GGA	TGG	ATG	
120	Thr	Asn	Asn	Pro	Pro	Ile	Pro	Val	Gly	Glu	130	Ile	Tyr	Lys	Arg
ACA	AAT	AAT	CCA	CCT	ATC	CCA	GTA	GGA	GAA	ATC	TAT	AAA	AGA	TGG	
					140	Asn	Lys	Ile	Val	Arg	Met	Tyr	Ser	Pro	Thr
Ile	Ile	Leu	Gly	Leu	AAT	AAA	ATA	GTA	AGA	ATG	TAT	AGC	CCT	ACC	
ATA	ATC	CTG	GGA	TTA											
150	Ser	Ile	Leu	Asp	Ile	Arg	Gln	Gly	Pro	Lys	160	Glu	Pro	Phe	Arg
AGC	ATT	CTG	GAC	ATA	AGA	CAA	GGA	CCA	AAG	GAA	CCC	TTT	AGA	GAT	
					170	Tyr	Lys	Thr	Leu	Arg	Ala	Glu	Gln	Ala	Ser
Tyr	Val	Asp	Arg	Phe	TAT	AAA	ACT	CTA	AGA	GCC	GAA	CAA	GCT	TCA	
TAT	GTA	GAC	CGG	TTC											
180	Gln	Asp	Val	Lys	Asn	Trp	Met	Thr	Glu	Thr	190	Leu	Leu	Val	Gln
CAG	GAT	GTA	AAA	AAT	TGG	ATG	ACA	GAA	ACC	TTG	TTG	GTC	CAA	AAT	
					200	Lys	Thr	Ile	Leu	Lys	Ala	Leu	Gly	Pro	Ala
Ala	Asn	Pro	Asp	Cys	AAG	ACT	ATT	TTA	AAA	GCA	TTG	GGA	CCA	GCA	
GCA	AAC	CCA	GAT	TGT											
210	Ala	Thr	Leu	Glu	Glu	Met	Met	Thr	Ala	Cys	220	Gln	Gly	Val	Gly
GCT	ACA	CTA	GAA	GAA	ATG	ATG	ACA	GCA	TGT	CAG	GGA	GTG	GGG	GGA	
					230	Arg	Val	Leu	OP						
Pro	Gly	His	Lys	Ala	AGA	GTT	TTG	TGA	TAG						
CCC	GGG	CAT	AAA	GCA											

Translated Mol. Weight = 25700.75

FIG. 22B

REPLACEMENT SHEET

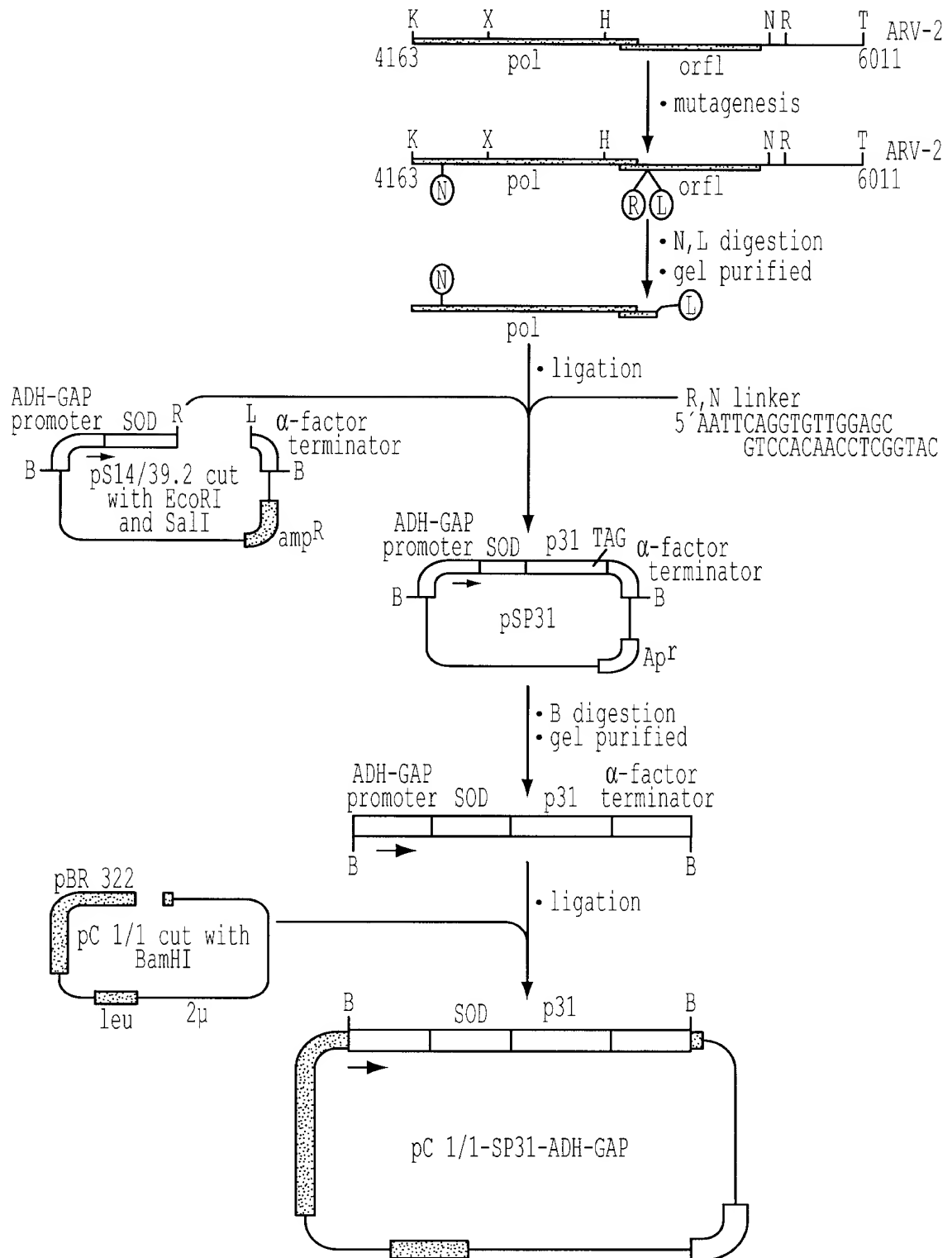


FIG. 23

REPLACEMENT SHEET

SOD-->
MetAlaThrLysAla
ATGGCTACAAAGGCT
TACCGATGTTTCCGA

1383 ValCysValLeuLysGlyAspGlyProValGlnGlyIleIleAsnPheGluGlnLysGlu
GTTTGTGTTTTGAAGGGTGACGGCCAGTTCAAGGTATTATTAAGTTCGAGCAGAAGGAA
CAAACACAAAACCTTCCCACTGCCGGGTCAAGTTCATAATAATTGAAGCTCGTCTTCCTT

1443 SerAsnGlyProValLysValTrpGlySerIleLysGlyLeuThrGluGlyLeuHisGly
AGTAATGGACCAGTGAAGGTGTGGGGAAGCATTAAAGGACTGACTGAAGGCCTGCATGGA
TCATTACCTGGTCACTTCCACACCCCTTCGTAATTTCTGACTGACTTCCGGACGTACCT

1503 PheHisValHisGluPheGlyAspAsnThrAlaGlyCysThrSerAlaGlyProHisPhe
TTCCATGTTTCATGAGTTTGGAGATAATACAGCAGGCTGTACCAAGTGCAGGTCTCACTTT
AAGGTACAAGTACTCAAACCTCTATTATGTCGTCCGACATGGTCACGTCCAGGAGTGAAA

1563 AsnProLeuSerArgLysHisGlyGlyProLysAspGluGluArgHisValGlyAspLeu
AATCCTCTATCCAGAAAAACACGGTGGGCCAAAGGATGAAGAGAGGCATGTTGGAGACTTG
TTAGGAGATAGGTCTTTTGTGCCACCCGGTTTCTACTTCTCTCCGTACAACCTCTGAAC

1623 GlyAsnValThrAlaAspLysAspGlyValAlaAspValSerIleGluAspSerValIle
GGCAATGTGACTGCTGACAAAGATGGTGTGGCCGATGTGTCTATTGAAGATTCTGTGATC
CCGTTACACTGACGACTGTTTCTACCACACCCGGCTACACAGATAACTTCTAAGACACTAG

1683 SerLeuSerGlyAspHisCysIleIleGlyArgThrLeuValValHisGluLysAlaAsp
TCACTCTCAGGAGACCATTGCATCATTGGCCGCACACTGGTGGTCCATGAAAAAGCAGAT
AGTGAGAGTCCTCTGGTAACGTAGTAACCGGCGTGTGACCACCAGGTACTTTTTCTGCTA

1743 AspLeuGlyLysGlyGlyAsnGluGluSerThrLysThrGlyAsnAlaGlySerArgLeu
GACTTGGGCAAAGGTGGAAATGAAGAAAGTACAAAGACAGGAAACGCTGGAAGTCGTTTG
CTGAACCCGTTTCCACCTTTACTTCTTTCATGTTTCTGTCTTTGCGACCTTCAGCAAAC

linker --> p31 -->

1803 AlaCysGlyValIleGlyIleAlaGlnAsnSerGlyValGlyAlaMetAlaMetAlaSer
GCTTGTGGTGTAATTGGGATCGCCAGAATTCAAGGTGTTGGAGCCATGGCCATGGCTAGT
CGAACACCACATTAACCCTAGCGGGTCTTAAGTCCACAACCTCGGTACCGGTACCGATCA

1863 AspPheAsnLeuProProValValAlaLysGluIleValAlaSerCysAspLysCysGln
GATTTTAACCTGCCACCTGTAGTAGCAAAAGAAATAGTAGCCAGCTGTGATAAATGTCAG
CTAAAATTGGACGGTGGACATCATCGTTTTCTTATCATCGGTCGACACTATTTACAGTC

1923 LeuLysGlyGluAlaMetHisGlyGlnValAspCysSerProGlyIleTrpGlnLeuAsp
CTAAAAGGAGAAGCCATGCATGGACAAGTAGACTGTAGTCCAGGAATATGGCAACTAGAT
GATTTTCTCTTCGGTACGTACCTGTTTCATCTGACATCAGGTCTTATACCGTTGATCTA

FIG. 24A

REPLACEMENT SHEET

1983 CysThrHisLeuGluGlyLysIleIleLeuValAlaValHisValAlaSerGlyTyrIle
 TGTACACATCTAGAAGGAAAAATTATCCTGGTAGCAGTTTCATGTAGCCAGTGGATATATA
 ACATGTGTAGATCTTCCTTTTTAATAGGACCATCGTCAAGTACATCGGTCACCTATATAT

2043 GluAlaGluValIleProAlaGluThrGlyGlnGluThrAlaTyrPheLeuLeuLysLeu
 GAAGCAGAAGTTATTCCAGCAGAGACAGGGCAGGAAACAGCATATTTTCTCTTAAATTA
 CTTTCGTCTTCAATAAGGTCGTCTCTGTCCCGTCCTTTGTCGTATAAAAGAGAATTTTAAT

2103 AlaGlyArgTrpProValLysThrIleHisThrAspAsnGlySerAsnPheThrSerThr
 GCAGGAAGATGGCCAGTAAAAACAATACATACAGACAATGGCAGCAATTTTACCAGTACT
 CGTCTTCTACCGGTCATTTTTGTTATGTATGTCTGTTACCGTCGTTAAAGTGGTCATGA

2163 ThrValLysAlaAlaCysTrpTrpAlaGlyIleLysGlnGluPheGlyIleProTyrAsn
 ACGGTTAAGGCCGCCTGTTGGTGGGCAGGGATCAAGCAGGAATTTGGCATTCCCTACAAT
 TGCCAATTCCGGCGGACAACCAACCCGTCCCTAGTTCGTCTTAAACCGTAAGGGATGTTA

2223 ProGlnSerGlnGlyValValGluSerMetAsnAsnGluLeuLysLysIleIleGlyGln
 CCCCAGATCAAGGAGTAGTAGAATCTATGAATAATGAATTAAGAAAATTATAGGACAG
 GGGGTTTCAGTTCCTCATCATCTTAGATACTTATTACTTAATTTCTTTTAATATCCTGTC

2283 ValArgAspGlnAlaGluHisLeuLysThrAlaValGlnMetAlaValPheIleHisAsn
 GTAAGAGATCAGGCTGAACACCTTAAGACAGCAGTACAAATGGCAGTATTCATCCACAAT
 CATTCTCTAGTCCGACTTGTGGAATTCTGTCGTCATGTTTACCGTCATAAGTAGGTGTTA

2343 PheLysArgLysGlyGlyIleGlyGlyTyrSerAlaGlyGluArgIleValAspIleIle
 TTTAAAGAAAAGGGGGGATTGGGGGATACAGTGCAGGGGAAAGAATAGTAGACATAATA
 AAATTTTCTTTTCCCCCTAACCCCTATGTCACGTCCCTTTCTTATCATCTGTATTAT

2403 AlaThrAspIleGlnThrLysGluLeuGlnLysGlnIleThrLysIleGlnAsnPheArg
 GCAACAGACATACAACTAAAGAACTACAAAAGCAAATTACAAAATTCAAATTTTCGG
 CGTTGTCTGTATGTTTGATTTCTTGATGTTTTCGTTTAATGTTTTTAAGTTTTAAAGCC

2463 ValTyrTyrArgAspAsnLysAspProLeuTrpLysGlyProAlaLysLeuLeuTrpLys
 GTTTATTACAGGGACAACAAAGATCCCTTTGGAAAGGACCAGCAAAGCTTCTCTGGAAA
 CAAATAATGTCCCTGTTGTTTCTAGGGGAAACCTTTCTGTCGTTTCGAAGAGACCTTT

2523 GlyGluGlyAlaValValIleGlnAspAsnSerAspIleLysValValProArgArgLys
 GGTGAAGGGGCAGTAGTAATACAAGATAATAGTGACATAAAAGTAGTGCCAAGAAGAAAA
 CCACTTCCCCGTCATCATTATGTTCTATTATCACTGTATTTTCATCACGGTTCTTCTTTT

2583 AlaLysIleIleArgAspTyrGlyLysGlnMetAlaGlyAspAspCysValAlaSerArg
 GCAAAAATCATTAGGGATTATGGAAAACAGATGGCAGGTGATGATTGTGTGGCAAGTAGA
 CGTTTTTAGTAATCCCTAATACCTTTTGTCTACCGTCCACTACTAACACACCGTTTCATCT

2643 GlnAspGluAspAM
 CAGGATGAGGATTAG
 GTCCTACTCCTAATC

FIG. 24B

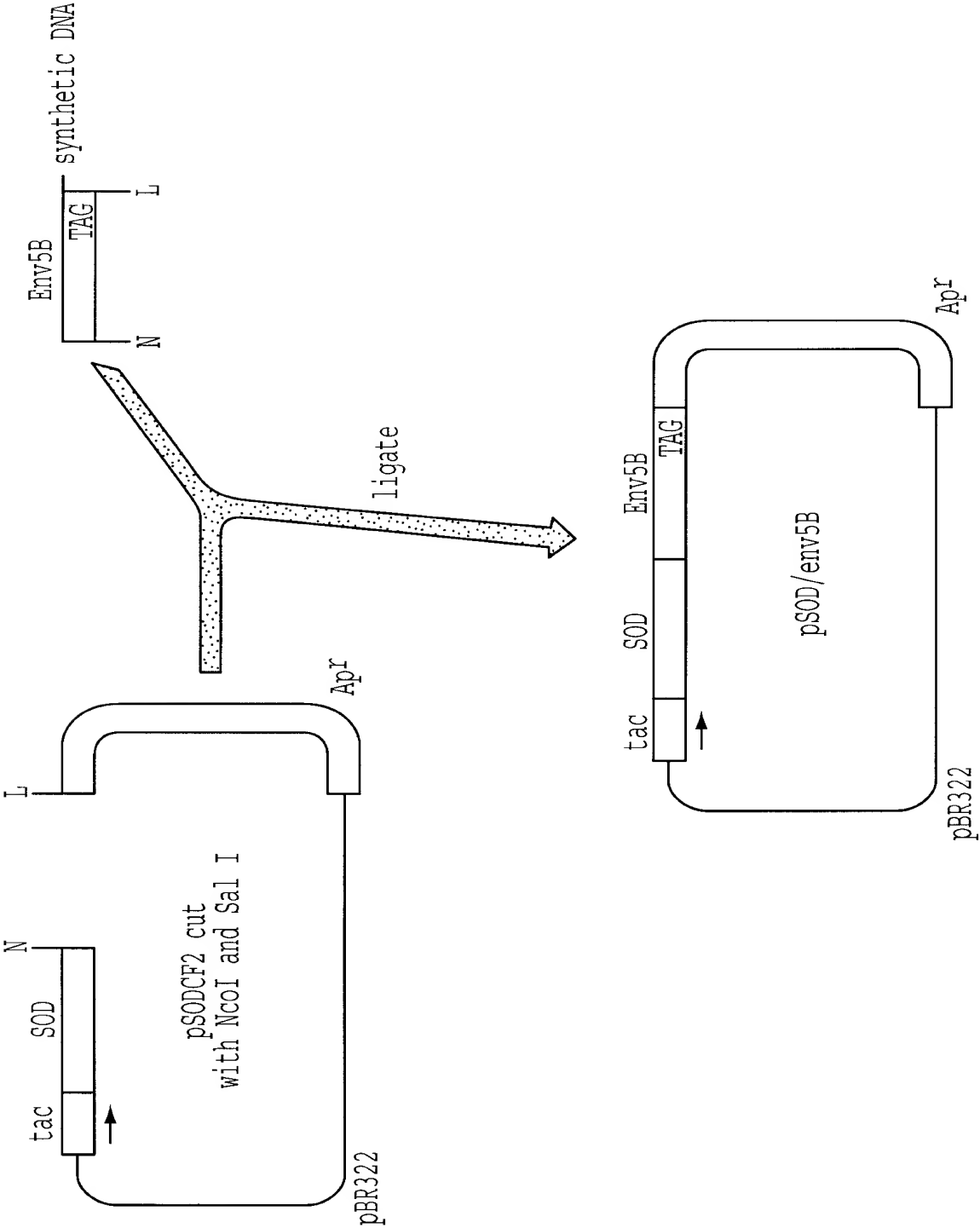


FIG. 25

REPLACEMENT SHEET

Sequence of SOD/env-4

SOD -->

1 MetAlaThrLysAlaValCysValLeuLysGlyAspGlyProValGlnGlyIleIleAsn
 CATGGCGACGAAGGCCGTGTGCGTGCTGAAGGGCGACGGCCAGTGACAGGGCATCATCAAT
 CGCTGCTTCCGGCACACGCACGACTTCCCGCTGCCGGGTACGTCCTCCGTAGTAGTTA

62 PheGluGlnLysGluSerAsnGlyProValLysValTrpGlySerIleLysGlyLeuThr
 TTCGAGCAGAAGGAAAGTAATGGACCAGTGAAGGTGTGGGGAAGCATTAAAGGACTGACT
 AAGCTCGTCTTCTTTTATTACCTGGTCACTTCCACACCCCTTCGTAATTTCTGACTGA

122 GluGlyLeuHisGlyPheHisValHisGluPheGlyAspAsnThrAlaGlyCysThrSer
 GAAGGCCTGCATGGATTCCATGTTTCATGAGTTTGGAGATAATACAGCAGGCTGTACCACT
 CTTCCGGACGTACCTAAGGTACAAGTACTCAAACCTCTATTATGTCGTCCGACATGGTCA

182 AlaGlyProHisPheAsnProLeuSerArgLysHisGlyGlyProLysAspGluGluArg
 GCAGGTCCTCACTTTAATCCTCTATCCAGAAAACACGGTGGGCCAAAGGATGAAGAGAGG
 CGTCCAGGAGTGAAATTAGGAGATAGGTCTTTTGTGCCACCCGGTTTCTACTTCTCTCC

242 HisValGlyAspLeuGlyAsnValThrAlaAspLysAspGlyValAlaAspValSerIle
 CATGTTGGAGACTTGGGCAATGTGACTGCTGACAAAGATGGTGTGGCCGATGTGTCTATT
 GTACAACCTCTGAACCCGTTACACTGACGACTGTTTCTACCACACCCGGCTACACAGATAA

302 GluAspSerValIleSerLeuSerGlyAspHisCysIleIleGlyArgThrLeuValVal
 GAAGATTCTGTGATCTCACTCTCAGGAGACCATTGCATCATTGGCCGCACTGGTGGTC
 CTTCTAAGACACTAGAGTGAGAGTCTCTGGTAACGTAGTAACCGGCGTGTGACCACCAG

362 HisGluLysAlaAspAspLeuGlyLysGlyGlyAsnGluGluSerThrLysThrGlyAsn
 CATGAAAAAGCAGATGACTTGGGCAAAGGTGGAAATGAAGAAAGTACAAAGACAGGAAAC
 GTACTTTTTCTGCTCTACTGAACCCGTTTCCACCTTTACTTCTTTTCATGTTTCTGTCTTTG

Env4-->

422 AlaGlySerArgLeuAlaCysGlyValIleGlnIleAlaMetGluValValIleArgSer
 GCTGGAAGTCGTTTGGCTTGTGGTGTAAATGGGATCGCCATGGAGGTAGTAATTAGATCT
 CGACCTTCAGCAAACCGAACACCACATTAACCTAGCGGTACCTCCATCATTAATCTAGA

482 AspAsnPheThrAsnAsnAlaLysThrIleIleValGlnLeuAsnGluSerValAlaIle
 GACAATTTTACGAACAATGCTAAAACCATAAATAGTACAGCTGAATGAATCTGTAGCAATT
 CTGTTAAAGTGCTTGTTACGATTTTGGTATTATCATGTGCGACTTACTTAGACATCGTTAA

542 AsnCysThrArgProAsnAsnAsnThrArgLysSerIleTyrIleGlyProGlyArgAla
 AACTGTACAAGACCCAACAACAATACAAGAAAAAGTATCTATATAGGACCAGGGAGAGCA
 TTGACATGTTCTGGGTTGTTGTTATGTTCTTTTTCATAGATATATCCTGGTCCCTCTCGT

FIG. 26A

REPLACEMENT SHEET

602 PheHisThrThrGlyArgIleIleGlyAspIleArgLysAlaHisCysAsnIleSerArg
 TTTCAACAGGAAGAATAATAGGAGATATAAGAAAAGCACATTGTAACATTAGTAGA
 AAAGTATGTTGTCTTCTTATTATCCTCTATATTCTTTTCGTGTAACATTGTAATCATCT
 662 AlaGlnTrpAsnAsnThrLeuGluGlnIleValLysLysLeuArgGluGlnPheGlyAsn
 GCACAATGGAATAACACTTTAGAACAGATAGTTAAAAAATTAAGAGAACAGTTTGGGAAT
 CGTGTTACCTTATTGTGAAATCTTGTCTATCAATTTTTTAATTCTTGTCAAACCTTA
 722 AsnLysThrIleValPheAsnGlnSerSerGlyGlyAspProGluIleValMetHisSer
 AATAAAACAATAGTCTTTAATCAATCCTCAGGAGGGGACCCAGAAATTGTAATGCACAGT
 TTATTTTGTATCAGAAATTAGTTAGGAGTCCTCCCCTGGGTCTTTAACATTACGTGTCA
 782 PheAsnCysArgGlyGluPhePheTyrCysAsnThrThrGlnLeuPheAsnAsnThrTrp
 TTTAATTGTAGAGGGGAATTTTCTACTGTAATACAACACAACACTGTTTAATAATACATGG
 AAATTAACATCTCCCCTTAAAAAGATGACATTATGTTGTGTTGACAAATTATTATGTACC
 842 ArgLeuAsnHisThrGluGlyThrLysGlyAsnAspThrIleIleLeuProCysArgIle
 AGGTTAAATCACACTGAAGGAAGTAAAGGAAATGACACAATCATACTCCCATGTAGAATA
 TCCAATTTAGTGTGACTTCCTTGATTTCCTTTACTGTGTTAGTATGAGGGTACATCTTAT
 902 LysGlnIleIleAsnMetTrpGlnGluValGlyLysAlaMetTyrAlaProProIleGly
 AAACAAATTATAAACATGTGGCAGGAAGTAGGAAAAGCAATGTATGCCCCTCCCATTGGA
 TTTGTTTAATATTTGTACACCGTCTTCATCTTTTCGTTACATACGGGGAGGGTAACCT
 962 GlyGlnIleSerCysSerSerAsnIleThrGlyLeuLeuLeuThrArgAspGlyGlyThr
 GGACAAATTAGTTGTTTCATCAAATATTACAGGGCTGCTATTAAACAAGAGATGGTGGTACA
 CCTGTTTAATCAACAAGTAGTTTATAATGTCCCGACGATAATTGTTCTCTACCACCATGT
 1022 AsnValThrAsnAspThrGluValPheArgProGlyGlyGlyAspMetArgAspAsnTrp
 AATGTAACATAATGACACCGAGGTCTTCAGACCTGGAGGAGGAGATATGAGGGACAATTGG
 TTACATTGATTACTGTGGCTCCAGAAGTCTGGACCTCCTCCTCTATACTCCCTGTTAACC
 1082 ArgSerGluLeuTyrLysTyrLysValIleLysIleGluProLeuGlyIleAlaProThr
 AGAAGTGAATTATATAAATATAAAGTAATAAAAATTGAACCATTAGGAATAGCACCCACC
 TCTTCACCTAATATATTTATATTTTATTATTTTAACTTGGTAATCCTTATCGTGGGTGG
 1142 LysAlaLysArgArgValValGlnArgGluLysArgOP OP
 AAGGCAAAGAGAAGAGTGGTGCAGAGAGAAAAAAGATGATGAAGCTTG
 TTCCGTTTCTCTTCTCACCACGTCTCTTTTTTCTACTACTTCGAACAGCT

FIG. 26B

REPLACEMENT SHEET

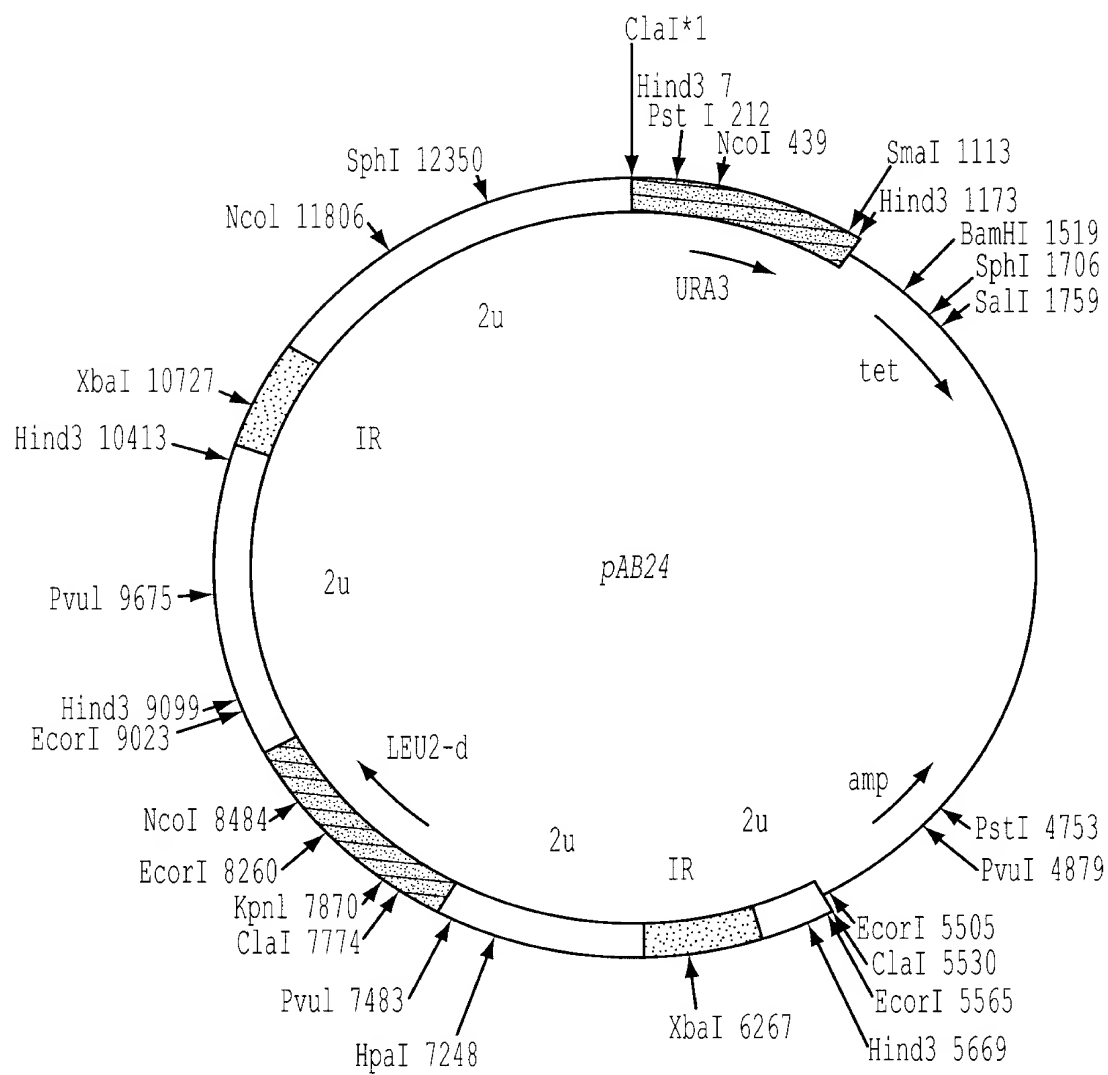


FIG. 27

REPLACEMENT SHEET

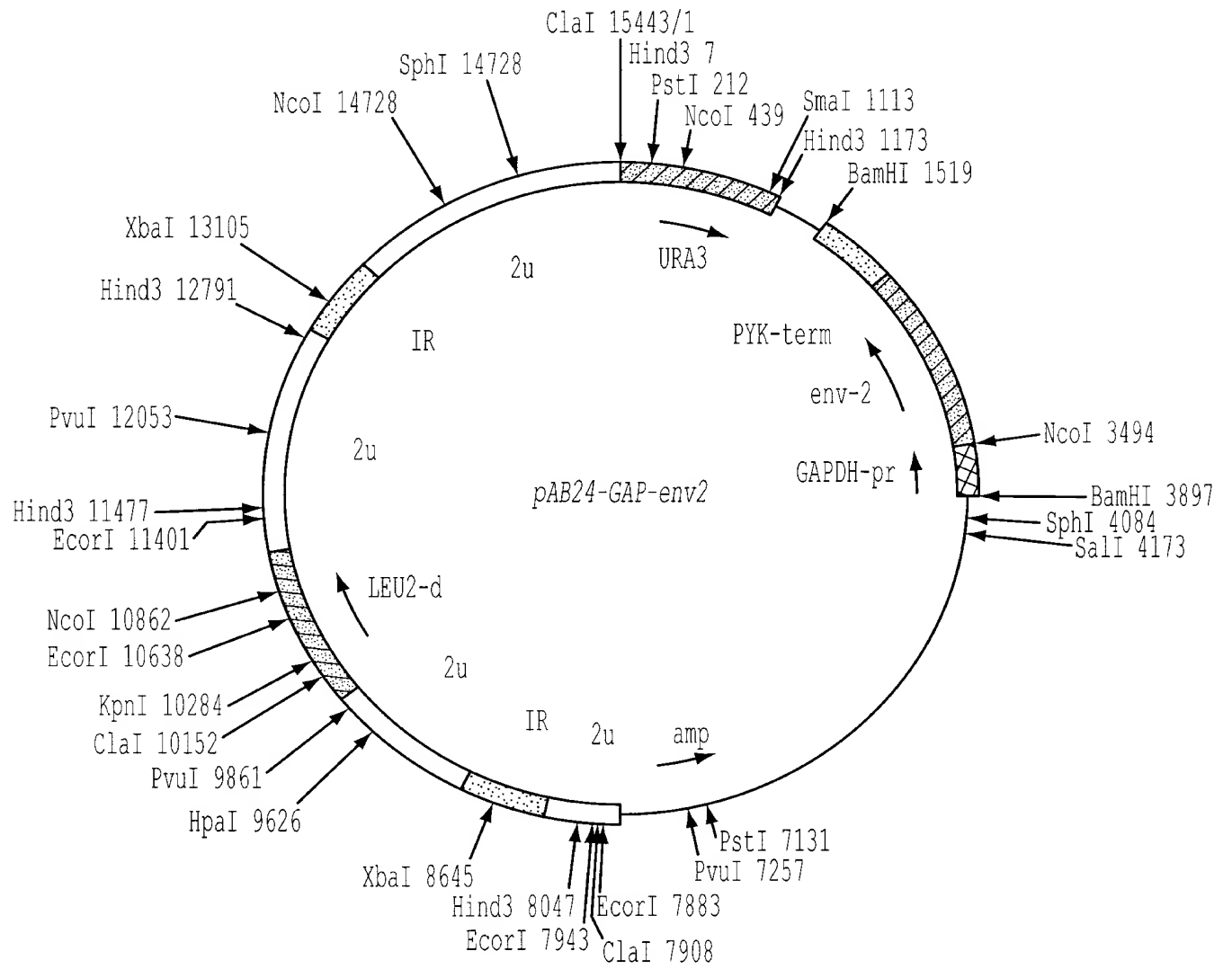


FIG. 28

REPLACEMENT SHEET

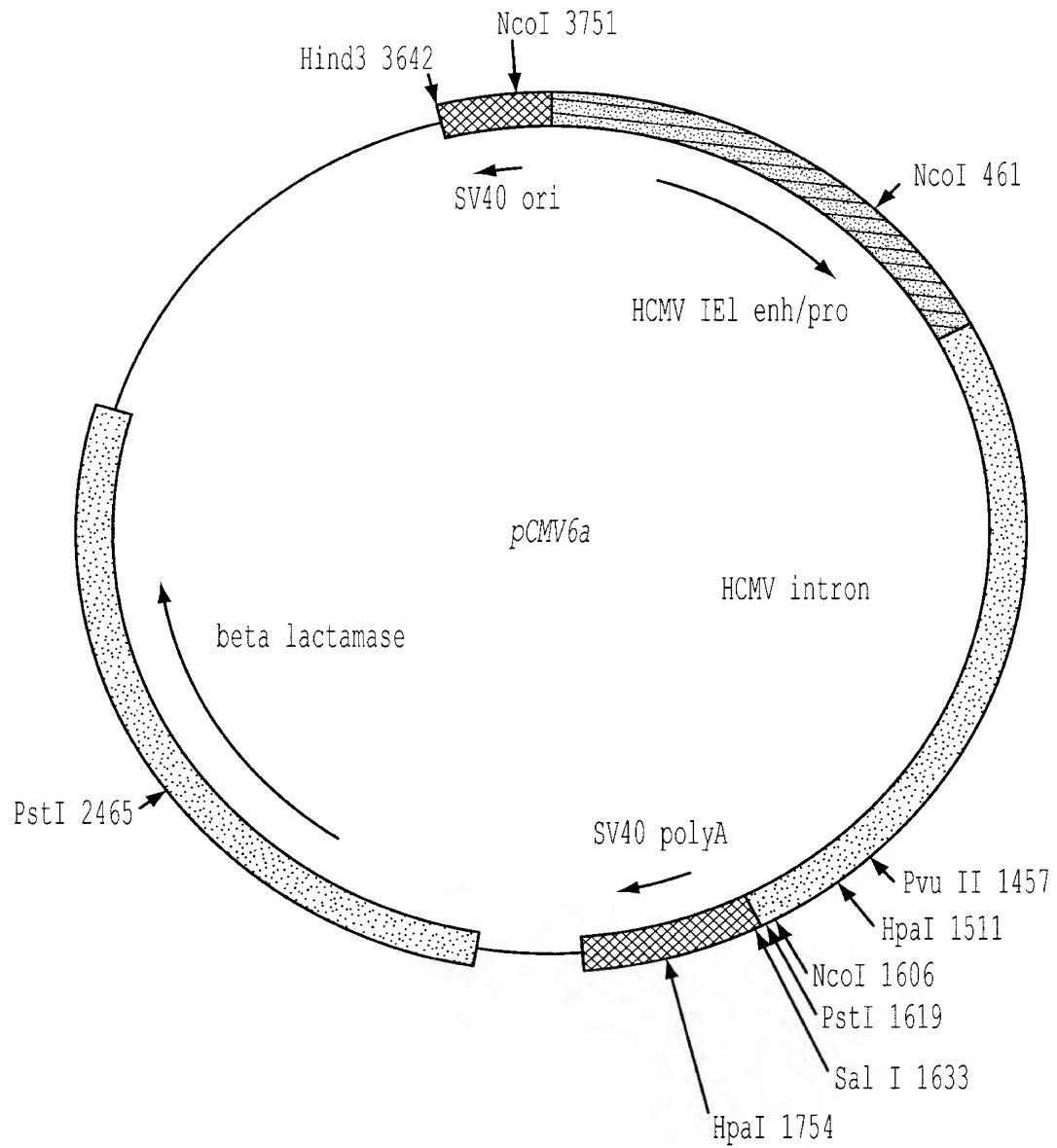


FIG. 29

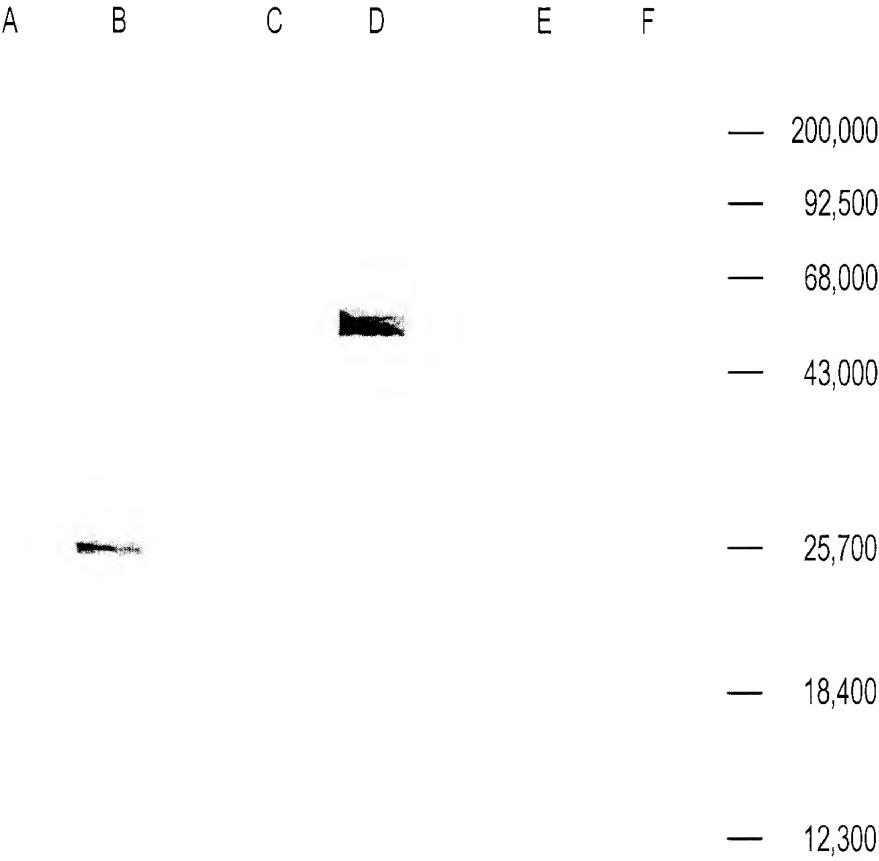


FIG. 30

REPLACEMENT SHEET

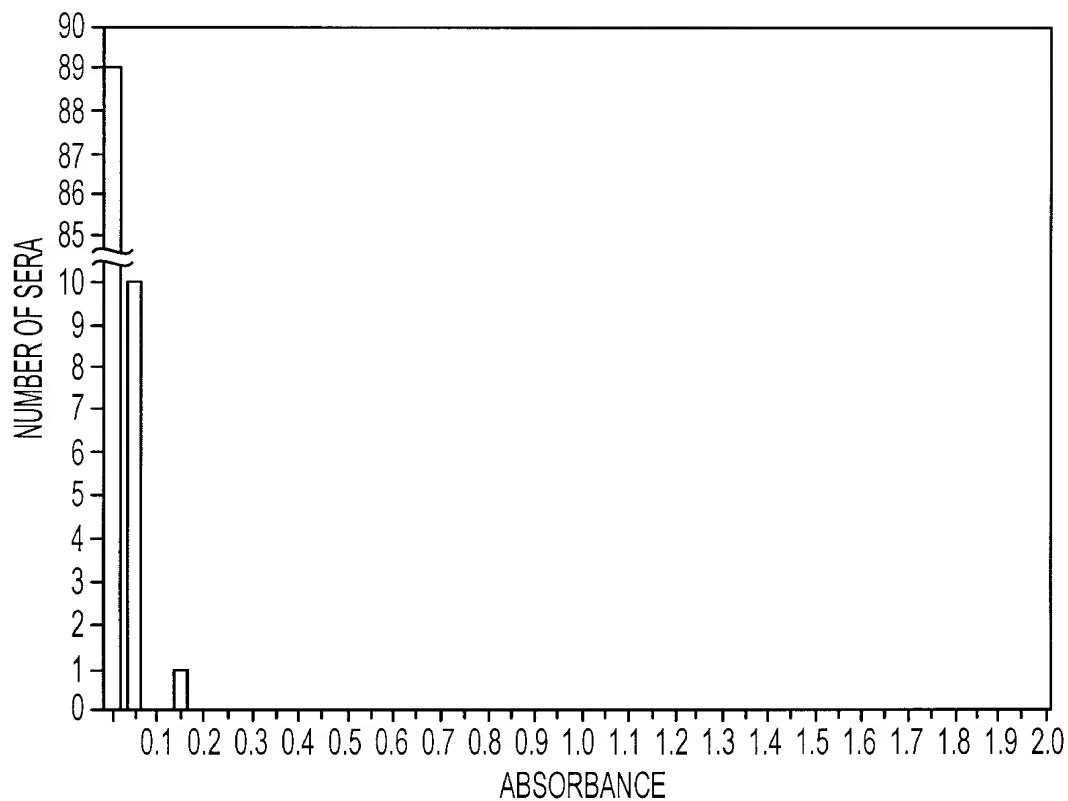


FIG. 31A

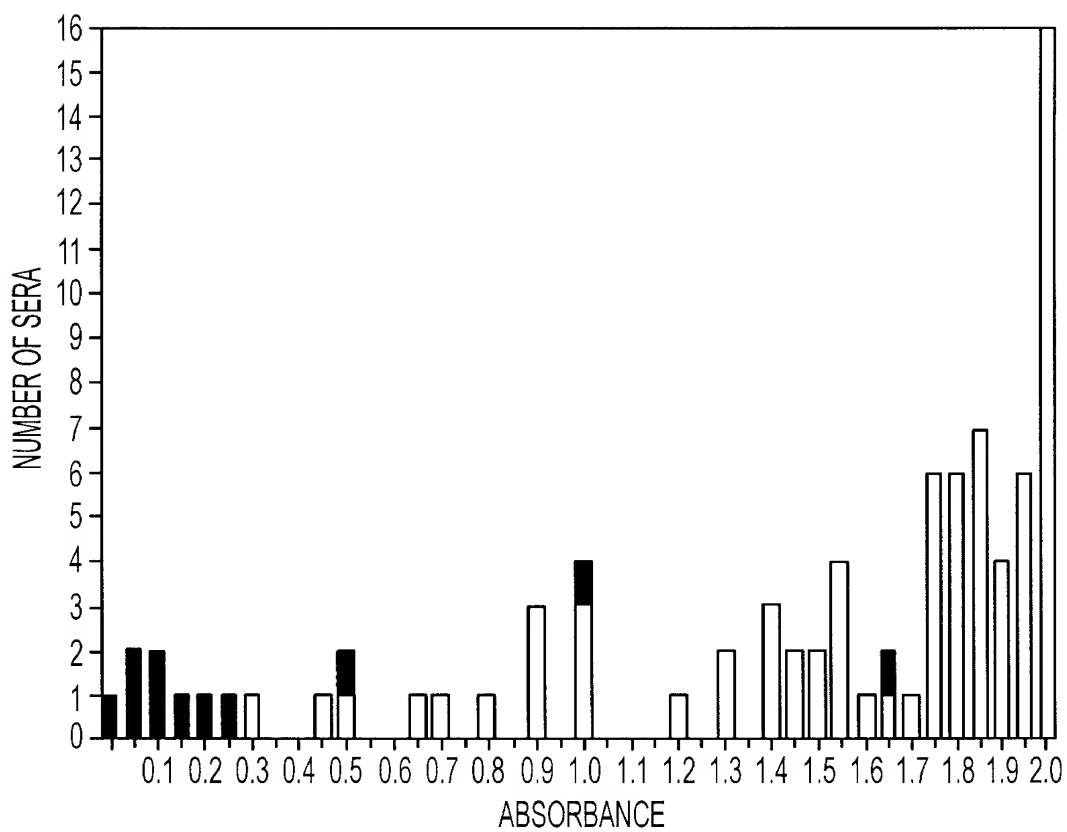


FIG. 31B